# Understanding Language

## An Introduction to Linguistics

Roger Fowler

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It is widely recognized that language is humanity's most distinctive and valuable faculty. In this work, originally published in 1974, Roger Fowler explains the character and absorbing interest of language. Designed as an introductory text for students and others concerned with human communication, the book is clearly and concisely written, yet it in no way oversimplifies its rich and complicated subject.

The opening chapters set the scene by a discussion of the power of language in the social and psychological life of a man, while the main body of the book is an introduction to linguistics, the science of language study. Coverage is provided of the main topics in linguistic description – semantics, syntax, phonetics – as well as of the functions of language, its status in society and its relation to the individual. The reader is invited to participate in some advanced thinking within an up-to-date and consistent linguistic theory. Particular attention is given to the individual as language-learner, since the process of language acquisition illuminates most clearly the naturalness and the complexity of language.

The author's arguments are illustrated with hundreds of examples from English and other languages. Suggestions for further reading are included in the exposition, and the reader who follows the arguments and pursues the carefully arranged bibliographical recommendations will acquire a substantial insight into contemporary linguistics – the most important and advanced of the modern human sciences.

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## An introduction to linguistics

To my parents

# Contents

# Preface

In the preface to his collection of essays, *Extraterritorial*, George Steiner claims that there has been a 'language revolution' (and, furthermore, that it is common knowledge that there has been a language revolution). Whether or not the language capacities and language values of the 'civilized' world were revolutionized around or after 1914 is a question of interpretation; and such a revolution ought in any case to be put into perspective. How much more resounding must have been the effects of that dramatic change, deep back in pre-history, when man, by what process we do not know, ceased to be a naked ape and became a language animal. Language is possibly the most vital and powerful of mankind's unique endowments: by means of it we regulate our social and interpersonal behaviour and build up and stabilize our intellectual engagement with the world. Language is therefore of central interest to anyone who is curious about the distinctive characteristics which make man the peculiarly gifted and successful organism that he undoubtedly is.

The study of language is **linguistics**. There have been several revolutions in linguistics, among which the most significant recent ones are probably 1786, 1916 and 1957 (see chapter 2). Steiner's 'language revolution' includes the linguistics revolution of 1957, that is to say the publication of Noam Chomsky's *Syntactic Structures* which heralded the phenomenal success of a new style of grammatical analysis, 'transformational-generative' linguistics or 'TG' for short. TG is first and foremost a device for the display of syntactic structure in highly formal, abstract terms, and the professional journals of linguistics bear witness to the tremendous advances in the descriptive delicacy of linguistics which have been

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achieved since the transformational technique has been available. We now know vastly more about the structure of natural languages – particularly English – than we did fifteen years ago; and even where new *facts* are not revealed, we now have *explanations* for certain complexities of linguistic structure which traditional grammarians had noticed but had failed to explicate. In its descriptive aspect TG is often formidably difficult and technical. Some of its technicalities are expounded in the present book.

But the TG revolution was not merely technical or scholastic in its impact. It brought into fashion a whole new philosophy of language; or, as Chomsky expresses it, revived and substantiated traditional ways of looking at language which had been ignored in the earlier part of this century while linguistics was swept along with the tide of positivistic, empiricist feeling which dominated the physical and social sciences. Chomskyan linguistics, despite its formal and superficially forbidding symbols and rules, is built on an assumption of the essential naturalness of language, is so constructed that our discoveries about the way language is put together can be readily integrated with findings and hypotheses concerning man's social and psychological existence. As a direct result of Chomsky's work on grammar, psycholinguistics has thrived – particularly research into child language acquisition. At the same time, progress has been made in structural studies of the functioning of language in society. Whereas, twenty years ago, language was seen as an abstract code detached from human experience, it is now seen as a vital communicative system inseparable from other processes of living.

The present book is an introduction to language *and* to linguistics. It does not claim to be a textbook from which one might learn the entire methodology of linguistic analysis, still less a survey, historical or contemporary, of the vast range of activities that comprise the linguistic sciences. However, it alludes to most of the central aspects of the formal structure of language, as well as to the ways language integrates with the social and psychological existence of human beings. As the characterization of language unfolds, much of the conceptual and terminological apparatus of generative linguistics is inevitably invoked. I could have attempted to make the book neutral as to theoretical 'model'; but since the particular insights of generative grammar are presupposed by my generalizations about language, it would have been misleading and perhaps dishonest to conceal them. Now having chosen a generative model, I was faced with a major problem: TG has been in a state of continuous development since its inception in the late 1950s, and since about 1968 has been in violent fermentation. Disputes flourish, and new ideas, mostly

*Preface*

challenging what Chomsky calls the 'standard grammar' (*floruit circa* 1965) continually erupt. Recently, the theory of meaning has been so developed as to stretch the powers of existing syntactic models to breaking point. It seems to me unlikely that a unified generative theory will be agreed upon in the foreseeable future; and I believe it is unnecessary for a book of the present kind to await a successful synthesis. The various sections of this book, then, lean on partial theories which are not always entirely compatible. In particular, specialists will recognize that the semantic analyses offered in chapters 3–4 and the ideas about syntax proposed in chapters 5–7 are drawn from different phases in modern linguistic theory, so that their compatibility cannot be absolutely assured. It would have been impertinent, or at least premature, for me to attempt a wholly integrated synthesis. Instead, I have tried to draw upon the insights of recent linguists who have written convincingly on the separate levels of linguistic analysis, acknowledging that discussion of these different levels has reached different degrees of refinement. I have been acutely conscious of the problem of 'drawing the line' chronologically, of deciding where to make pause while the science of linguistics is developing so rapidly. No cut-off point could fail to be arbitrary. My cut-off point is *circa* 1970; at that time the new 'generative semantics' was beginning to look very plausible. Now, reviewing the publications of 1971 and 1972, it seems that the syntacticians are making a come-back.

A word concerning the level, scope and mode of use of this book. It is intended as an elementary textbook, primarily but not exclusively for directed use in introductory courses in linguistics; it is written in response to my own feeling that there exists no comparable book which attempts to convey an impression of the importance and ramifications of language in our daily personal and social lives – thus, a suggestion of the range of heads under which language might be studied – and at the same time to provide a grounding in the formal techniques and concepts of scientific linguistics. It is difficult to avoid skimping on one or the other in a book of moderate length. So the majority of introductory texts choose one or other alternative: an informal evocation of the flavour of language, or an uncompromising onslaught on the methodology of some specialized aspect (usually syntax or phonetics) of linguistic science. The usual defect of books of the first type is that they tend to the enthusiastic evocation of a miraculism in language, and in the enjoyment of the wonders of language the essential systematicity, discipline, of the subject is dissipated. Usually, such books smooth over the controversies within the science of linguistics, making the whole thing seem gentler and less engaging and challenging than it actually is. The drawbacks of the

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second choice (introducing the student to the technique of one part of linguistic description) are twofold: first, other areas get left out; second, the text is bound to be severe, formal, and committed to one alternative in linguistic ideology. On both accounts, the student is left needing the informal, general, evocative and seductive text to supplement his specialized book – indeed, to lead him up to it ('a medicine of cherries', as Sir Philip Sidney said of another kind of book).

As a teacher of linguistics, I have generally been driven to an unsatisfactory solution: the medicine of cherries has consisted of a specialized text in syntax or phonology or semantics sweetened by one of the attractive 'classic' works dealing with language more generally, e.g. Bloomfield's or Sapir's *Language*. Dissatisfaction arises because of the chronological, ideological/theoretical and even *stylistic*, discord between the contemporary specialist and the classic generalist. Now I do not pretend that *Understanding Language* may join the ranks of those great books justly named *Language*: given the present disputatious state of linguistics, it is unlikely that anyone could maintain an acceptable consistency and generosity over all the branches of language-study that would have to be covered in the needed 500,000 words! I have attempted something much less ambitious: an introduction to language and linguistics which makes mention of most of the topics in linguistics, which aims at conceptual consistency, and above all which tries to be in tune with modern theory while at the same time minimizing disharmony with the more controversial innovations and with the great earlier theories which we may today neglect. I am conscious that the book presents an air of the 'fashionable' in linguistics today (or 'just-before-today', for safety): this is a deliberate strategy to facilitate students' access to more advanced and technical books of the last few years. At the same time, I have tried at all cost to bridle the contemporaneity of the book where it might have threatened to make earlier (specifically, pre-transformational) writings unreadable to the curious student.

At the end of each chapter, recommendations for further reading are offered, and the titles recommended are collected into a reading list on pp. 259–66. These bibliographical suggestions have been chosen with some care. Out of the enormously rich literature of linguistics I have picked those books and articles which fit most closely with the on-going chapter-by-chapter argument. I should caution the reader *not* to start with p. 259 and proceed through the reading list alphabetically. The suggestions for further reading are designed as a guide for the general reader who is working through this book on his own. In that situation he should pursue the 'further reading' in relation to my developing argument. In that way it is hoped that, without the guidance of a teacher or a formal course, the book may provide

access to a broader linguistic science than can be covered in these pages. That is, the book may be used by the 'general reader' as his initial chart for linguistics.

Chapters 5–7 make brief use of material to be found more fully expounded in my earlier book, *An Introduction to Transformational Syntax* (Routledge & Kegan Paul, 1971). I have taken care that these two books should be as fully compatible as the present fluid state of linguistics allows.

The book has been developing for about a decade, and reflects my teaching of elementary language studies to undergraduates at the universities of Hull, East Anglia and California (Berkeley). The final version was written during 1971–2, and has benefited greatly from the comments of my colleagues, Veronica Du Feu, Gunther Kress and Sinclair Rogers, who helped me remove many errors, obscurities and infelicities of style. The defects which remain can be blamed mostly on my obstinacy, partly on the unstable contemporary situation in linguistics. I, like other writers in this field, have been forced to make the subject look a bit more settled than it actually is. If we did not take this liberty, such books as this one could never be written.

Roger Fowler

# one

# Language

When we need to speak, language usually comes to us with thought-less ease; it takes social embarrassment, or intellectual incompre-hension, or a severe fit of coughing, to render us silent when we need to speak – inhibitions which, we can readily feel, are quite removed from 'language itself'. That blocked word 'on the tip of the tongue' seems to be a rare case of a pure language failure; generally, speech flows freely. Whatever the real cause of our occasional verbal blockages, we *feel* them to be exceptional; conversely, we accept our normal power of language as a natural gift comparable to breathing, or balancing, or the process of digestion. We are quite right to do so. The first premise of this book is that language is an intrinsic aspect of our human inheritance. It thus differs in kind from such arduously acquired – and inessential – skills as chess-playing, bicycle-riding, calculus.

The first insight must be counterbalanced with a second. I expect that most readers of this book have attempted to learn a foreign language as adults, that most have experienced difficulty, and that few would claim to be anything like as proficient in their second language as they are in their 'mother tongue'. The problems of adult language-learners are interesting in themselves; but what is note-worthy here is the perspective we achieve, grappling with an un-familiar tongue, of the structural complexity of language: we become conscious, perhaps for the first time, of the delicacy, depth and extensiveness of linguistic form. It cannot be true that 'all foreign languages are difficult' (although some languages may be particularly difficult – or easy – for speakers of certain first lan-guages); it must be the case that language is a genuinely complicated kind of knowledge and behaviour. We do not normally realize this

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fact, because we are not called upon, in the normal course of our day-to-day activities, to bring language structure to conscious attention. This consciousness is the preoccupation of the academic linguist (and of many of his scholarly near cousins): he is concerned to expound the structure of particular languages, and of language at large. His exposition is bound to convey the 'difficulty' of language, and in view of this he has a special responsibility to square the sense of difficulty with the fact of naturalness. His picture of the intricacy of language must be consistent with a further observation, and a rather spectacular one: babies begin to acquire this complicated skill of speech around their first birthday and are astonishingly articulate within a few months of starting to talk.

As we shall see in chapter 9, human infants seem to be naturally predisposed to talk. We refer to adults *learning* a language, children *acquiring* one: this terminological distinction is meant to suggest that children come to possess linguistic knowledge without formal instruction and, so far as we can see, without the conscious effort of drills, memorization and exercises associated with second language learning. Exposure to a language being used around them seems to be the simple prerequisite to set in motion some innate 'language acquisition device' which almost universally leads to proficiency within a short space of time. Children learn language quickly, and they learn it early – generally, the rudiments of speech are established before a child can draw a straight line, tie his shoe-laces or perform even more primitive motor skills. Furthermore, children very often acquire language against the odds: an impoverished linguistic environment (e.g. inattentive or uncommunicative or even speechless parents, or lack of siblings) does not seem to prevent acquisition of the formal bases of language, even though fluency and size of vocabulary in later childhood may be impaired. Congenitally blind children rapidly learn language. Those who are deaf or severely hard of hearing learn to speak only with great difficulty; but as soon as they can be taught to read and write they pick up a knowledge of language which may be perfect except in its phonetic manifestation. Retarding conditions such as mongolism often do no more than slow down the rate of acquisition and introduce slight deficiencies later on – poor pronunciation, occasional grammatical slips. Even babies who are so unfortunate as to suffer major brain damage can learn to use language, provided the injury occurs very early. It is only the most massive psychological handicaps (notably autism) which inhibit language totally.

If, then, a second language is hard to induce in an adult, the first language is nevertheless inordinately difficult to suppress in an infant. The rule seems to be: if you are human, you will in the

natural course of events become a language-user very rapidly. It may be worth adding at this point that the rule applies irrespective of race or culture – we will see that there are no 'primitive languages' and this is because there are no (biologically normal) linguistically primeval babies. Language is natural in that it is **species-uniform.**

By 'language' I mean 'human language': it is not only uniform within the species, but also **specific** to the species. No other animal has command of language, at least not in the sense of 'language' utilized in linguistics. This is not to deny that other animals possess communication systems – of course, all social, reproducing organisms communicate with their kind. What is being denied is that any non-human species possesses naturally a communication system which is qualitatively like human language; and it seems that no other species can be brought to learn language. 'Talking' birds, for instance, cannot be said to know language, nor truly to use it. They mimic a limited set of phonetic signals; they cannot manufacture new utterances; and they betray their lack of understanding by producing their sham-sentences on inappropriate occasions. (Parrots notoriously lack tact.) Perhaps greater success might be predicted with species biologically closer to man. Chimpanzees, who are very intelligent, rapid and eager learners of tricks, have been perennial subjects in language-teaching attempts. Several experiments in which baby chimps have been lovingly fostered in human families have proved virtually complete linguistic failures. Sometimes the animals have been taught to react differentially to a small stock of commands (cf. dogs); one subject, Viki, was given intensive linguistic instruction and succeeded in learning to produce three words (*mama, papa, cup*) very indistinctly and in rigorously controlled standard settings (the inability to verbalize outside certain fixed contexts is revealing). But the vocal apparatus of apes is not well adapted to producing speech sounds, and perhaps this limitation was the source of the difficulty. On this assumption, the failure occurred for very trivial reasons. At the University of Nevada a chimpanzee called Washoe has been taught to communicate on a range of topics using American Sign Language ('deaf-and-dumb language'); however, it appears that she has no syntax – symbols, though used correctly, are put together in random order. It would be premature to allow Washoe's achievement to modify our overall assessment that chimpanzees cannot learn language as human babies do.

All animals communicate within their species and often with members of other species. Domestic cats address each other with obvious comprehension and make clearly meaningfully intended gestures and vocal signs to human beings; the same observation

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applies to dogs. Most animals direct recognizable signs of, say, sexual receptiveness or territorial threat towards their fellows in appropriate situations and display behaviour indicative of warning or submissiveness to members of other species as the occasion demands. Depending on biological make-up and on the characteristics of the environment, the kinds of signs employed and the kinds of messages conveyed are quite diverse. Within one very broad and useful sense of the notion 'communication' (including language) there is substantial variety in the kinds, and degrees of complexity, of communication systems found in the natural world. For present purposes I shall give **communication** the following general definition: communication is the manifestation of an abstract message through the medium of a physical signal; particular messages being tied to a specific signal according to conventions shared by the parties to any communicative event. These conventions, or 'rules', allow a sender to encode a meaning in a proper signal and, provided the sender has obeyed the rules, permit a receiver to retrieve the intended meaning from the signal. Notice that I have said 'receiver' rather than 'hearer', for communication is not limited to vocal-auditory behaviour. In theory any medium by which energy can be transmitted can serve as a communication channel. Vocal (or other noise) is an especially efficient mode for transmitting signalling energy, since sound waves can travel round corners and over serviceably long distances and since the location of their source can be triangulated by an organism which has two ears (binaural, stereophonic, reception). In addition, use of the speech tract leaves the hands or feet free for simultaneous activity such as fighting or running. But vocal communication can be supplemented by, or replaced by, the use of other signalling modes dependent on any of the other sense-perception systems: visual, in all that makes up gesture – physical positioning, attitude of body, movement of peripheral limbs, facial expression, display of plumage, and, in humans, indirect manifestations such as style of dress; tactile, as in the many body-contact ways of indicating meaning, from the stylized duellist's slap to sexual caress; olfactory, as in the skunk's offensive signal to back off or in the human's use of artificial perfumes to announce 'come on'. (Notice, again, the *indirectness* of the human adaptation in this case; it relates to our tool-making capacity, the second important ability which distinguishes us from lower animals.) Combinations of media are frequent: the cat hisses and at the same time makes her fur stand on end to look larger and fiercer; the dog both whines and scratches at the door in a complex signal that he wants to go out; alarmed birds squawk and flap their wings; fish may erect their fins or change colour and simultaneously move so as to set up vibrations in the water.

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Communication systems may, evidently, differ in respect of their media; in respect of the messages expressed or expressible; and in respect of the conventions for tying meanings to signals. And such differences are, obviously, very considerable as we move from system to system. At the level of the communicative medium, man's language is distinguished by the great intricacy and exactness of control of the vocal system. The respiratory system, the whole of the upper vocal tract and the musculature associated with the speech mechanism, all seem to be specially adapted to the complicated task of producing a rapid, virtually unbroken and constantly varying – but not random – succession of sound-waves. These sound-waves are completely distinctive: we can recognize a noise as unmistakably human linguistic noise, even if we hear a sample of some language we do not understand and have never heard before. The reason for this distinctiveness is the individuality of the human vocal apparatus. For example, the human larynx (voice-box) is of a structure which precisely determines the sounds which it can emit; and if we move from humans to the great apes, we find the same situation: their laryngeal structure is different, it has its own distinctive set of noises associated with it. The gibbon, for instance, has two sets of controllable vocal bands and hence emits a double, chord-like, call. The chimpanzee also has two sets of vocal cords, but he can vocalize with each pair independently, and can also 'speak' on an indrawn breath, an action which causes extreme discomfort in human beings. In man the secondary or 'false' vocal cords are not easily regulated and perform only a subsidiary phonetic function – perhaps in whispering; normally they are inactive. Thus in every case variations of physiological structure play a direct and deterministic role in the quality of the medium employed communicatively by the animal. Of course, the same principle holds for the grosser physical differences among species and the resultant signalling devices they have at their disposal.

The examples in the preceding paragraph concern a relatively crude, external, aspect of the speech-system: it is obvious that the noises which emerge from the human vocal apparatus depend on the physical structure of that apparatus! Just as obvious, however, should be the fact that this physical manifestation is only the tip of the iceberg. Human speech sounds the way it does because the vocal mechanism is structured as it is; and because the neurological system controlling the musculature is of a unique kind; and human *language* – not just its sounds – has its unique quality because of the specific character of the central nervous system. When we consider the meanings and the syntactic arrangements which distinguish human language, we are likely to come to the conclusion that these have the characteristics they do because they relate to a special kind of

biological organism whose central nervous system is of a language-specialized kind. The meanings coded in natural language, the categories into which meanings are organized, reflect the way the human being's conceptual faculties dispose him to 'see' the world; the syntactic orderings of the surface of language are the ones which his cerebral organization requires; and so on. Language is part of man's essential character; he is an animal specialized to language. Every aspect of the communication system which he naturally employs is determined by the kind of organism he is. This is, after all, just what we would expect: that man, like any other creature, behaves communicatively in the way that his nature directs.

The variety of communication systems, and their intimate dependence on the species which utilize them, may be brought out by studying a different mode of communication in a different form of animal. This way we may learn something about the *general* features of communication too. Let us look at a form of communication which makes use of a medium quite different from vocal noise – the gesture system or 'dancing' of honeybees. Bee-dancing is one of the most sophisticated of non-human 'languages', and happens to be one of the best documented also. The Austrian, Karl von Frisch, has devoted a lifetime's study to the communal activities of bees. The most famous aspect of his research concerns the devices which bees use to signal to their fellows the whereabouts of sources of food. He found that if a single bee discovered a supply of nectar, this source would shortly afterwards be visited by numbers of other bees from the same hive; a sequence of events which suggested that there was some means of communication among the society of the hive. Observation of the behaviour within the hive of bees which had just returned from a food-source showed that they were able to convey the richness, distance and direction of the source of nectar by stylized movements which Frisch called 'dancing'. (Additionally, the odour of nectar from a specific kind of flower ingested by the bee and adhering to its body gives some guidance.) The vigour of the 'dance' correlates with the richness of the source: as the source dries up the dance becomes less and less enthusiastic. The distance of the flowers from the hive is indicated by the geometry of the dance and by the frequency of turns in the dance. Bees perform two distinct kinds of dance, a 'circling dance' which is used when the food is within a short distance of the hive (100 metres), and a 'wagging dance' or 'figure-of-eight' dance for greater distances. The wagging dance consists of movement forward in a straight line followed by a sharp 360° turn to the starting-point, repetition of the forward movement, and so on. The rate of turning, i.e. the rate at which the bee performs the complete figure, is proportionate to the distance of the food from

the hive – the further away the food, the more slowly the bee does its dance. This measure gives a rough indication of the distance that needs to be travelled to reach the discovered food. Direction is indicated rather precisely. The bees dance on the vertical surface of the honeycomb, and the vertical dimension is taken to represent the direction of the sun (on a horizontal plane) relative to the hive. If the sun is directly above the source of nectar or pollen, the bee will indicate this by performing the straight part of the wagging dance along a vertical line with its head pointing up; if the sun is at 180° from the source, the straight part of the dance will again be aligned with the vertical, but this time with the head down. Other necessary angles of flight relative to the sun are translated into angles from the vertical. Of course, the orientation changes constantly through the day as the sun moves through the sky: it has no absolute value.

Linguists discussing the general characteristics of animal communication often refer to the bee example, not simply on account of the fascinating way the medium of gesture is employed, but because bee-dancing *as a formal system* possesses certain advanced properties shared with language but with few other styles of animal discourse. Considering these properties will lead us to think about the nature of language in a more abstract way than we have done up to this point. The two interesting characteristics I want to single out are what are called **displacement** and **productivity** (more accurately, 'one kind of productivity').

Displacement is a feature of some communication systems which enables their users to symbolize objects, events and concepts which are not present (in time and space) at the moment of communication. Thus, I can refer to King Alfred, or the State of California, even though the first has been dead for over a thousand years and the second is situated six thousand miles from my home. The honey-bee, in a more modest way, exhibits displacement: he can refer to a source of food which is remote in time and space when he reports on it. This ability is fairly remarkable among animals. Most animals respond communicatively as soon as they are stimulated by some occurrence of communal interest: a warning cry instantly announces danger, a food cry beckons as soon as discovery is made. We say that such animals are under 'immediate stimulus control'. The survival value of breaking the chains of immediate stimulus control is obvious: the power of communicative displacement allows an animal to go away quietly and report on a food source to his family or herd without announcing its whereabouts to competitors; similarly, detecting a threat to the herd, a lone animal who commands displacement can steal back to his social group and warn them, minimizing danger to himself and to the group by not

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immediately announcing his presence. For man, displacement – again, an 'indirectness' of engagement with the environment, like tool-using and signalling by dress – brings immense conceptual power, as well as environmental control. Very little of our discourse takes place *in situ*, i.e. under the control of particular stimuli, in the presence of the referents of discourse. Certainly, the speech of very young infants tends to concern the 'here and now': to a large extent it consists of one-word utterances about single objects and processes which are physically present or going on at the time. But this phase passes very rapidly. By the time syntax is available to the child, he has the power of displacement (which is presumably a cognitive faculty separate from language yet expressed primarily in language). He modifies the names of objects, showing that he can 'locate' them spatially and temporally (*car garage, allgone car*, etc.). When he achieves a tense system associated with verbs, he shows that he can clearly distinguish between past, present and future time. Displacement is, of course, a prerequisite for thought. Language very early adapts itself to this faculty, and in so doing presumably accelerates the child's intellectual development.

For the adult, displacement is the enabling factor in his power to handle generalizations, abstractions. Since our words (*tree, house,* etc.) need not be used only in the immediate physical presence of particular houses and trees, and indeed in most cases *are* not used in such precise contexts, word-meaning, even in 'thing-words' (like *tree*), is a general latency for referential application. The meaning of *tree* is presumably some sort of general concept: and a generalization of this kind, a collecting term for things, is the essential step towards abstract discourse. If we can talk about things which are physically distant, we acquire the facility to manipulate concepts to which no 'things' answer: *truth, infinity, multiplication*. The real intellectual benefit of displacement to human beings is that it allows them to discourse (and hence, presumably, think) in abstract terms.

Before we consider 'productivity', another feature of language, related to displacement, is worth mentioning: this is what Joseph H. Greenberg calls **multimodality**. An animal which simply responds to a situation by instantly emitting a signal cannot be said to be making any particular *kind* of an utterance in relation to it. If an animal shrieks a danger cry on encountering a predator, what sort of thing is he saying? Is he merely exclaiming? or making a descriptive statement? or directing an imperative towards his allegiance group (*keep away!*)? Surely these alternatives have no relevance to animal communication: animals make no linguistic distinctions between commands, questions, statements, emphatic assertions, etc.: they simply respond vocally (or in other appropriate ways) to events.

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But in human language such distinctions are important: imperative, indicative, interrogative, negative and the rest are contrasting 'moods' of utterance. Human beings express attitudes, degrees of commitment, curiosity, towards the subjects of their discourse. Displacement is a prerequisite for modality: you cannot take up a stance (chosen from a set of alternatives) towards a phenomenon unless you are free from its control. The freedom is an elementary one, but important: the freedom to choose between 'This is a dog', 'This *is* a dog', 'Is this a dog?' 'Beware of the dog!', etc. (Note that although modality presupposes displacement, the reverse is not the case: it would be nonsense to speculate on whether a bee-dance is a command or a statement or a request, for instance.)

We come now to 'productivity' (or, as it is sometimes called, 'creativity'). A productive communicative device is one which is capable of signalling an unlimited number of messages. Bee-dancing has productivity, in a sense. Bees can point the direction of a food-source, whatever the direction might be: the axis of the figure-of-eight dance may intersect the vertical (which, remember, symbolizes the position of the sun relative to the hive) at any angle. Similarly, the rate of execution of the dance answers proportionately to the distance of the source from the hive. Both of these indicators, direction and distance, move on continuous scales with infinite gradations, that is to say, there is an indefinite number of communicable messages. This might be called the 'speedometer' principle of linguistic structure: a continuous gradation in messages is correlated with a continuous gradation of signals. The device makes possible productivity *of a sort* – an indefinite number of meaning-differentiations, but within fixed limits and, one would suppose, all concerning one 'topic'. Bees, of course, can 'talk' only about nectar. Not unnaturally, the 'speedometer' relationship between messages and signals is not central to the creativity of human language. It is found, certainly: especially where emotional and perceptual states are communicated by sounds of varying intensity. The sharper the pain, the greater the rage, the louder and higher is likely to be the expressive cry. But this device of continuous variability of voice intensity is, as with the bees, semantically quite trivial. We must look elsewhere for the source of man's ability to produce and understand totally new sentences, to discourse on new topics: an ability he exercises all the time.

The 'speedometer' principle of symbolization is in any case inadequate to cope with the kind of conceptual universe inhabited by man. This is an ordered universe, as we shall see in chapters 3 and 4; but the ordering is not merely along continua – not merely degrees of emotional intensity, variations in distance or weight, progressions

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along continuous dimensions of that sort. Our world is seen as a structured collection of *discrete* phenomena: animals, people, trees, buildings, nations, rivers, flowers, apples, tools. A world of separate objects or concepts, provided that there are not too many of them, may be indicated by a set of separate signs. Primate communication is of this kind: the gibbon, for example, has at his disposal a finite repertoire of separate calls, each one unambiguously associated with a particular situation – anger, sexual arousal, friendliness, etc. An even simpler communication system of the same type is illustrated by two-state traffic signals: red means 'stop', green means 'go'; this little conceptual universe contains only two meanings, and only two signs. It is a primitive, explicit 'one-to-one' system.

Now all communication depends on the physical transference of energy for symbolization. This being so, communicative possibilities are restricted by the physical limitations of the mediating device. 'One-to-one' systems are in fact extremely uneconomical, since the number of messages cannot exceed the number of signs the medium is capable of indicating distinctly. A more efficient way of utilizing the capacity of a signalling device entails abandoning the one-to-one principle. Traffic lights in Britain, for instance, have only three distinct coloured lights (red, green, amber) but are programmed to emit four discrete signals. The extra capacity is gained by using the lights in combination: red means 'stop', green 'go'; amber means 'about to change to red'; red-and-amber-together means 'about to change to green'. (Still more capacity is available with further combinations, but to use it would introduce logical contradictions at the level of 'meaning'!) British traffic lights take a cautious step into a mode of communicative organization which, as far as I know, is not found in the sub-human animal world. The level of meaning and the level of signals are treated as absolutely separate: signals are not tied to particular concepts, and therefore may be combined to cover an inventory of discrete signs. This facility, which seems to be unique to language, is known as **duality of patterning** or **double articulation**. We can see how this works in language by looking briefly at the phonetic level. Although the human vocal apparatus is extraordinarily flexible and can be controlled fairly precisely, the number of sounds which can be enunciated separately so as to be perceived by a hearer as unequivocally distinctive units is strictly limited. English uses thirty to forty (depending on one's criteria for counting them), and the maximum reported for any language is about seventy. Without duality of patterning, human language could communicate only seventy separate concepts, assuming that seventy is the maximum for

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perceptibly discrete sound units. Suppose [æ] (the vowel in *act*) represented the concept 'house', [k] symbolized 'tree' and [t] symbolized 'man'; the symbolic potentialities of these three sounds would now be used up, and new concepts would demand quite new sounds. But under the duality principle, none of these sounds is uniquely monopolized by any one concept – indeed, sounds are quite meaningless in themselves – and so they can be put together in combinations, thus:

[æt]    'at'
[tæ]    'expression of thanks in some dialects'
[kæt]   'cat'
[ækt]   'act'
[tæk]   'tack'

etc. Not every combination of sounds is used to symbolize an English word. Some sequences are inadmissible on purely phonological grounds: [ktæ] for instance is not a well-formed sound-cluster in English (though it might be in some other language – it is not 'unpronounceable'); also there are 'accidental' lexical gaps: [kæ] is not an English word, although it is a permissible phonetic sequence. If all combinations of sounds in a language were used, the lexical resources would be enormous. Suppose a language possessed only ten sounds, could put them together in any order and tolerated sequences a maximum of four sounds long; a vocabulary of 10,000 words would be possible under this simple arrangement, given duality of patterning. English has in fact thirty to forty sounds, and there is no theoretical limit on the length of sequences.

'Duality of patterning' (Hockett's phrase) or 'double articulation' (Martinet's) receives its name in recognition of the separateness of structure of the semantic and phonetic levels. In a 'one-to-one' system, particular meanings and particular symbols are tied together absolutely; in a system which has duality, signs are freed from particular semantic functions. Sounds are semantically quite arbitrary. Together, the sounds of a language constitute an independent phonetic system, with its own rules for structure which are not influenced by meaning considerations (cf. the purely *phonetic* unacceptability – in English – of [ktæ], above). Similarly, the concepts expressible in a language make up an independent semantic system. We may thus speak of two separate levels of linguistic structure, semantic and phonetic; and we must propose a third level, syntax, a set of conventions for associating meanings and sounds in the formation of particular sentences. This notion of 'level' is of crucial importance in descriptive linguistics; and the three levels I have listed are the ones which are generally mentioned

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in traditional grammatical theory. I will discuss them further in the next chapter.

Duality explains how a very large number of meanings can be expressed by means of a very limited set of signals – in effect, it shows how a finite device or organism (e.g. a human being) with immense communicative needs can transcend the inevitable physical limitations of its own signal-making apparatus. But duality does *not* account for productivity in human language, productivity of a kind quite superior to that observed in bee communication, and perhaps meriting a different name: let us call it **creativity**. Modern linguists have repeatedly stressed the fact that mature human speakers can without conscious effort produce and understand an unlimited number of sentences which are quite 'new' to them. We know enough about the way children acquire language (see chapter 9) to be certain that they do *not* learn by rote an inventory of completely formed sentences, given to them whole by the community, building up a memorized stock from which individual utterances are selected one by one as occasion demands. Apart from being a psychologically implausible model of language learning (it would imply an inordinately inefficient use of brain 'storage space', for instance), this account is suspect in the light of certain empirical observations of children's language anyway. Very young children come out with sentences that they could not have picked up from adults (*allgone milk*, *I goed up*, etc.); the most likely explanation for these is that the infant *constructs* them on the basis of a set of provisional, un-adult, grammatical conventions which he has built for himself – if this explanation is accepted, a kind of creativity is evidenced from a very early age. At the same time, children seem to comprehend things which are said to them which they have most probably not encountered before. This capability is perfectly established by the time of linguistic maturity. There is a sharp division between strictly routine sayings (*Good morning*, *Thank goodness*, *You're welcome*, *I love you*, etc.) and the rest of our communication: the routine phrases are learnt as whole pieces of language, produced usually thoughtlessly, and are often semantically empty. They form a very small part of our linguistic behaviour: the bulk of our verbal performance is creative in a very important sense. We construct each next utterance as a new piece of language, tailor-making it to match the given situation and topic. It is extremely unlikely that you have ever previously encountered any of the sentences which you have read and understood so far in this book. Similarly, the next sentence you yourself produce is likely to be unique.

Of course, you have met sentences *like* the ones in this book. Naturally, the range of sentence *types* is limited – the grammar is

ordered, finite; patterns recur. Some linguists claim that there is an infinite number of sentences in a natural language, but it is probably well to be more cautious and say that there are no bounds to the number of **utterances**, regarding utterances as 'tokens' of the sentence 'types'. If we take a given sentence-structure, there can be innumerable distinct realizations of that type. One interesting fact is that some constructions can be extended indefinitely by adding clause after clause:

1. John said that Mary thought that Tom had claimed that Richard believed . . .
2. This is the dog that chased the cat that killed the rat that . . .
3. She has eaten two hamburgers, a dish of salad, some pickles, several pieces of bread . . .

The syntactic facility guarantees that there is *no longest sentence* in a natural language, and thus an unlimited number of utterances, since for every utterance there is a possibility of a longer one. This is a largely theoretical observation, of course – in actual language use, the length of utterances is strictly limited by biological and psychological factors. However, it is a notable fact about the 'algebra' of language that it does – unlike other communicative systems – have this infinite potentiality.

More important than the variety and multiplicity of utterances, though, is the fact that we can talk about an infinite number of *topics*: a privilege not, apparently, shared by other animals. As our world of objects and ideas changes and expands, our linguistic representation of it is modified accordingly. This is true of society as a whole, as well as of the individual as he matures into his culture. The vocabulary is in a continuous state of change, all the time adapting itself to modifications in our material and conceptual universe. Words come and go, mainly come: *transistor*, *sputnik*, *television*, *morpheme*, *escalate*, etc., are added as the physical or intellectual need arises. Another process is modification of the values of existing words: the existing *record* and *disc* accommodated new meanings when the gramophone was invented, without destroying the old meanings; the twentieth-century entertainment world has also provided *star* with a new meaning which it carries without disturbing the old astronomical and astrological senses. In such ways a language extends its capability to say new things about new topics; and there is no reason inherent in the structure of language itself why this extensibility should be restricted: language appears to be genuinely and powerfully – limitlessly – creative.

Let us take stock of the argument so far. A human infant acquires, quickly and easily, a most sophisticated system of communication.