

HOMO LOQUENS: AN ETHOLOGICAL VIEW

ERNST PULGRAM

Language, it is generally agreed, is the property of man alone on this earth. 'Animal language' is a metaphorical term at best, referring to nothing more elaborate than a set of vocal signals that some animals can produce so as to establish contact with their fellows. The range of these signals is narrow, and their distinctiveness scant. It is possible, indeed easy, to list exhaustively all the different utterances that even the most 'articulate' animal will ever produce in his life, and no member of the species will invent any new signals or utterances. But it is of course inconceivable to record or foretell the different utterances of one human in his lifetime, let alone those of the entire species. Animal signals serve to announce matters of simple, albeit often vital, import: the approach of an enemy, the staking out of a territorial claim (the singing of birds), the sole possession of food or of a mate henceforth inaccessible to competitors, leadership over a group, and so forth.¹⁾ All such signals are of course species specific. They are triggered by an attitude and a mood created by the animal's present perceived surroundings. Animal language is made up, then, not of information symbols, but of mood signals.²⁾

¹⁾ Jackdaws and Central American howling monkeys are reputed to have a comparatively large inventory of distinct cries. The varied noises that a dolphin makes have recently been the object of investigation and conjecture, but it is too early to tell what portion of them is meaningful, though the intelligence of the animal is evidently great. Bees are said to employ an elaborate set of signals, conveyed, however, by dancing and body gestures rather than by noises.

²⁾ For this reason a dog can be trained to obey commands like 'Sit' and 'Speak'. (Note the doglover's anthropomorphic euphemism for 'Bark'.) But he cannot learn, as every child of course can, that the phrase 'Don't ...'

In the behavior called speaking man is thus a peculiar and unique animal on earth. So he is also because of his brain, which is distinguished from the analogous organs of other species by its marvellous complexity and efficiency, and which in fact allows man to operate with conceptual thought, to be a speaking creature. In other respects, man is biologically rather a generalized animal in that he can rely on no feature that equips him peculiarly and shapes his fate: he enjoys no great speed or strength, is not protected by a shell or carapace, bears no strong tooth or claw. His brain is his only, but overpowering specialization: because of it he has provided himself with extra-corporeal tools that more than make up for his physical shortcomings, and has become the most potent – since he is the most cunning and intelligent – predator. Clearly man's faculty of speech too is a function of the superior cerebral equipment that evolution has bestowed upon him. *Homo loquens* is therefore no less suitable a name for the species than is *homo sapiens*.

Yet speech is behavior, and not, like the brain, an organ. Indeed the organs involved in speech production are only secondarily employed for talking; primarily they serve vital functions: when the diaphragm, the lungs, trachea, larynx, mouth, nose, tongue, teeth, or the lips cease to perform normally, man's physical existence is impaired or becomes terminated. And certainly the brain itself attends to numerous and crucial concerns besides facilitating speech. (It is not impossible, however, that various organs involved in speech production would be less nimble and less sensitive if they were not so employed.) Now if the brain is a portion of our inheritance that we come by simply because we are humans, is therefore speaking behavior also an innate endowment? But this question leads to the more fundamental one which had better be answered first, namely, whether behavior can be innate at all, and not merely acquired through a process of learning.

Whether behavior patterns can indeed be innate, or instinctive, not only in animals but also in man, has been a much debated question for centuries. An affirmative and, to my mind, particularly persuasive argument has lately been advanced by ethology, a

converts every command recognizable to him into a prohibition. He would have to learn every injunction separately as a new signal, the notion of syntactically structured utterances that consist of replaceable parts and occur in a certain order, being beyond his competence.

relatively recent branch of the life sciences, one of whose pioneers and most eminent practitioners is the Austrian naturalist Konrad Lorenz. Its thesis is perhaps summed up in the statement that 'human behavior, far from being determined by reason and cultural tradition alone, is still subject to all the laws prevailing in all phylogenetically adapted instinctive behavior'.³⁾ Ethology has in its short life made a great impact upon both the biological and the social sciences, which it straddles and between which it can build long-desired and strong bridges. Therefore it behooves the linguist also to examine what effect it may have upon his science.

Given its fundamental tenets, ethology could not but strike a heavy blow against the cult of the conditioned reflex, the alpha and omega of a view of human behavior that has its roots in Pavlov's experiments with the salivating dog, and was laid down in Watson's psychological doctrine called behaviorism.⁴⁾ This school of psychology holds that all human behavior is to be described exclusively in terms of physiological responses to external stimuli, and that explanations having recourse to unobservable mental activity must be avoided. The true scientific attitude requires, it is asserted, that operations with what cannot be observed must be rejected as unscientific. Although unadulterated behaviorism, after its heyday in the 1920's, was rather short-lived, its influence was and still is enormous. To be sure, in the 1940's and 1950's few scholars still fancied Watson's implicit claim that he could, by manipulating a baby's or infant's reflexes, create just about any kind of adult he had a mind to. (Naturally, neither the world at large nor the laboratory could accede to providing the requisite experimental conditions, hence the case was never tested.) Few indeed were willing to regard man as nothing more than a bundle of striped muscles receptive only to orders conveyed by the environment, virtually incapable of suscitating and spontaneously acting upon endogenous stimuli, and defenselessly buffeted and in fact shaped by the winds and currents of the piece of world in which he lives.⁵⁾

³⁾ Lorenz 1967, 229.

⁴⁾ Cf. Watson 1924.

⁵⁾ Cf. Lorenz 1967, 48: 'The fact that the central nervous system does not need to wait for stimuli, like an electric bell with a push-button, before it can respond, but that it can itself produce stimuli which give a natural, physiological explanation for the 'spontaneous' behavior of animals and

Yet we do not always render ourselves a clear account of the depth to which the theme of the conditioned reflex has invaded our thinking, how often ready reliance on reflex diverts us from reflecting. (How linguistics in particular has been enthralled I shall discuss later.) And if we do not follow the Pavlovs and the Watsons in regarding man as an accidental nothing, we are nonetheless not disinclined to think of him as a gentle and noble and innocent creature at bottom, but often rendered brutal and wicked, or at least naughty, by the pressures of an antagonistic and debasing environment. The attitude that the responsibility for doing wrong lies more often than not with society rather than with the individual, seems to resuscitate, quite unnecessarily and uselessly, Rousseau's naive and, one should have hoped, long since entered fallacy of man's innate goodness corrupted by civilization. No such absolute position can be sound – nor of course can the opposite one, inflicted by our current mythology, that man is evil by nature and can be redeemed only by divine grace dispensed through institutionalized religion. If nature and nurture jointly make us what we are, the problem is to discover what in us and what of us, including our language behavior, we owe to the one or the other.

It is obvious that in a human psychology dominated by behaviorism, or in any social science bent on extreme positivism, so impalpable an item as instinct, or innate behavior, cannot figure as part of the orthodoxy or even as a hypothesis. Yet wherever one turns in the animal world one comes inevitably upon patterns of behavior which are not due to the single specimen's ontogenetic learning and experience, but to something that is phylogenetically programmed in him. Thus instinct may be defined as 'the genetically determined pattern [or program] which informs an animal as to how to act in a given situation'.⁶⁾ When instinct governs, thought and intelligence (to the extent available in a given animal or a species) can be dispensed with or somehow bypassed in the nervous circuitry.

humans, has found recognition only in the last decades ... The strength of the ideological prejudices involved was plainly shown by the heated and emotional debates that took place before the endogenous production of stimuli within the central nervous system became a fact generally recognized by the science of physiology'.

⁶⁾ Ardrey 1968, 29. See also Tinbergen 1951.

To give just one example of innate programming, I may refer to that most puzzling and still unresolved problem of animal behavior, the homing instinct (of migratory birds, homing pigeons, green turtles, seals, salmon, eels, etc.). No amount of observation and experimentation has so far produced more than the essentially question-begging answer that instinctive rather than learned behavior is at work. If some say that homing pigeons and migratory birds find their way back to places where they have already been, and that they merely have a good sense of orientation,⁷⁾ no one can say the same of young eels who, having been hatched in the middle of the Atlantic Ocean, migrate infallibly to the places, either on the European or the American shore, which their parents left for breeding, heading in directions and toward locations which they, the transparent larvae, had never before experienced and concerning which they could of course not have been informed by their parents, who in any event had died after accomplishing their business of propagation. And – to use an example of behavior other than homing – African weaver birds whose ancestors had over four generations been kept in laboratory captivity and prevented from leading a normal life and from normal nesting, upon release into their natural surroundings unhesitatingly set about, without example or instruction, to fashion their characteristic globular nests woven of grass and fibres, which they suspended from a tree branch by means of a horsehair tied in the distinctive weaverbird knot.⁸⁾ Purely environmentalist explanations of these enigmas have shown themselves inadequate or wrong.

It is of course true that the animal which stands higher on the evolutionary ladder is less dependent upon instinct for his survival and that of his species. But even the highest animal so far brought forth by evolution, man (though he may yet turn out to be a not very successful evolutionary experiment, and exterminate himself), is still subject, as especially the ethologists have established, to instinctive drives, though in him they may be strongly reduced in

7) Pigeons have been transported away from home, however, in sealed boxes and vans so that they could not possibly observe the trip, and have been taken to a place they had never visited; yet they found their way back unerringly.

8) Cf. the experiments by Eugène Marais, reported by Ardrey 1967, 204.

number and in effectiveness, that is to say, may be subordinated by non-instinctive controls.

The behaviorist anthropologist says: '... the immediate fore-runners of man would have been increasingly freed from the limiting effects of their instinctual drives, so that by the time hominid [and human] status would have been attained, virtually the last vestiges of that instinctive system of drives would have disappeared'. 'In the course of human evolution the power of instinctual drives has gradually withered away, until man has virtually lost all his instincts. If there remain any residues of instincts in man, they are, possibly, the automatic reaction to a sudden loud noise, and in the remaining instance to a sudden withdrawal of support; for the rest, man has no instincts',⁹⁾

The ethologist, however, affirms (as quoted above, over fn. 3) that human behavior, especially social behavior, is not uninfluenced by instincts; and a great deal more on the subject will be said later. Even man's indulgent view of himself as a pretty good chap when it comes to choosing intelligently and discriminatingly the right and proper thing to do in an emergency, when calamity threatens, gets deflated: 'Man can behave very decently in tight spots, provided they are of a kind that occurred often enough in the palaeolithic period to produce phylogenetically adapted social norms to deal with the situation'.¹⁰⁾ Fortunately, if inevitably, the approximately thousand millennia of man's existence on earth have engendered enough such social norms so as to assure ourselves that we are not always true to the formula *homo homini lupus* 'man is a wolf to man'.¹¹⁾ Hence ethologists do not hold the simplistic view

⁹⁾ Montagu 1962, ix and 326.

¹⁰⁾ Lorenz 1967, 243.

¹¹⁾ Originally in Plautus, *Asinaria* 2.4.88 (sometimes falsely ascribed to Hobbes). In justice to the wolf it must be added, however, that he is among the animals provided with the most trustworthy inhibitive instinct against killing their own kind - probably because without this instinct wolves, being capable of killing one another easily with one quick bite to the jugular vein, could have exterminated their species long since. It is indeed suggested by ethology (cf. Lorenz 1967, 232-233) that man, not possessing the natural physical ability to kill another man easily and efficiently, has not developed that inhibition - and therefore, having invented the extra-corporeal means to do a better job of it, does in fact kill his fellows. (To ease his conscience he also invented war.)

that man is a victim of his low instincts from which he cannot escape; indeed this would be, as I remarked earlier, a mere pendant, equally absolute and extravagant, to Rousseau's notion of man's innate goodness. Surely the behaviorist, so ready to absolve man from responsibility for his vices, cannot begrudge the ethologist's disposition to liberate man from pretention to some of his virtues.

Some opponents of the Darwinian hypothesis of evolution insisted that divine creation and divine intervention were responsible for man's nature. To regard man as an animal, even as the most highly developed, rather than as God's crowning creation and masterpiece of the Sixth Day, appeared as an intolerable abomination to the established faiths (as had, three-hundred years earlier, Galileo's thesis that the earth, and with it man, was not the center and the glory of the whole universe). Thus the theory of evolutionary continuity moving upward from the amoeba to man was, and still is, abhorred by some. To them it is not enough that man is the most intelligent and (at least so far) the most advanced living thing on earth; they want him also to be separated from all other creatures by a chasm that no one dare bridge. It cannot be gainsaid that in the field of behaviour and ethics, in the domain of psychology and philosophy, there does yawn such a gap, another, albeit non-biological, discontinuity between non-man and man: it is the complacent conviction that man, unlike other living things, acts in reaction to his surroundings only and is totally free of any inherent, programmed pattern of behavior. It seems ironical that the modern theory of culture as the exclusive agent of man's behavior should run parallel to the antique belief in special divine creation as the exclusive agent of man's existence. A strange bedfellowship, indeed.¹²⁾

Man's ancient necessity to live in societies has, according to ethology, implanted in him over the millennia that social part of his behavior which is now innate, and which is implemented in his

¹²⁾ Cf. Hallowell 1956, 91: 'Whereas opponents of human evolution in the nineteenth century were those who naturally stressed evidence that implied discontinuity between man and his primate precursors, anthropologists of the twentieth century, while still giving lip service to morphological evolution, have by the special emphasis laid upon culture as the prime human differential, implied what is in effect an unbridged behavioral gap between ourselves and our closest relatives'.

structured systems of customs which we speak of severally as cultures. Indeed without the benefit of these social instincts we should not have become what we are: 'If it were not for a rich endowment of social instincts, man could never have risen above the animal world. All specifically human faculties, the power of speech [N.B.], cultural tradition, moral responsibility could have evolved only in a being which, before the very dawn of conceptual thinking, lived in well-organized communities'.¹³⁾ Nor could man have endured if he merely possessed but did not also desire, cherish, and were even willing to defend his culture: 'Without the phylogenetically programmed love for traditional custom, human society would lack the supporting apparatus to which it owes its indispensable structure'.¹⁴⁾ Yet customs and cultures, we know, are bound to change, their lack of endurance in human societies being as typical of them as is their very existence. From this arises the eternal contest between preservation and innovation in all human behavior, including language: unbridled change would lead to chaos and self-defeat, and deprive man of the social structure without which he, being the cultural animal he is, cannot last;¹⁵⁾ stagnation, on the other hand, and cultural petrification represent the other extreme, which man, being the brained animal he is, cannot tolerate. But there is no promise, and no evidence, that all cultural change is progress, on whatever scale it is measured. Certainly the records of human speech, extending as they do over but a minute fraction of man's existence, contain no trace of progress in the sense that man has derived advantage from all the structural changes attested in all the languages we know.

If the capacity to possess and to change cultural and social patterns is part of man's phylogenetic heritage, so is of course his capacity to learn about them, and, implicitly, about himself. In fact the desire to obtain knowledge and to be guided by it, and by reason, is also typical of man - no matter how short his performance may fall of his wishes and ideals. If these drives were not phylo-

¹³⁾ Lorenz 1967, 238.

¹⁴⁾ Lorenz 1967, 250.

¹⁵⁾ Cf. Ardrey 1967, 88: 'Through his social mechanism the primate [including man] has made sure that he will get the greatest return from his own superior endowment, the brain; and suffer the least disadvantage from his inherent vulnerability, the all-around weakness of his body'.

genetically programmed, or instinctive, what would impel man, unlike every other animal, to want to 'know' anything at all? Clearly, instinctual impulses and learned behavior collaborate, as already noted, and form 'the working structure of the instinctive and culturally acquired patterns of behavior which make up the social life of man', resulting in 'one of the most complicated systems we know on this earth'.¹⁶ It is obvious (and more will be said about this later) that man's learning and knowing, and of course teaching, are intimately connected with his capability to use language.

Primates come by their superior brain through an evolutionary process. This is saying no more than that by way of natural selection those individuals who were better equipped to deal with the requirements and opportunities thrust upon them were more likely to survive, and thus could pass on their superior qualities to their descendants, and thence to populations and the species.¹⁷ We do not know what external conditions may have led to the evolution of the brain in the primates. It has been suggested that the latest geological age, the Pleistocene, beginning over a million years ago and embracing four glaciations and climatic fluctuations oscillating between severe drought and great moisture, may have presented such challenges to pre-man and early man as to favor the survival and propagation, through thousands of generations, of those best equipped to cope with the environment, and thus led to the evolution and spread among the species of an increasingly powerful brain.

Man is, then, by instinct (and I now use the word in the ethological

¹⁶) Lorenz 1967, xi.

¹⁷) All this does of course not betoken a return to the Lamarckian notion of the inheritability of acquired characteristics, remarkable in its day (around 1800) for implying the thesis of evolution, which in fact inspired Darwin to further inquiries and eventually led him to Lamarck's refutation. Natural selection in the Darwinian sense merely concentrates and enhances inheritable characteristics, but it does not produce new ones. Only mutation can do that - and of it Darwin knew nothing, even though his genius left space for it in his theory. We can now fill this void, for it seems that the cause of mutation is radiation, whether from an X-ray machine or from outer space. Exposure to radiation may - but does not necessarily, indeed does rarely - affect a gene in a reproductive cell, and with it - far more often than not calamitously, with a counter-evolutionary effect - the entire descendant organism.

sense of innate programming) a social creature, possessing also various other phylogenetically evolved and inherited behavioral traits. He is furthermore endowed with the instinctive desire and a high capacity to learn, a gift that in turn is immeasurably enhanced by the efficiency and the potency of his brain and his general neurosensory constitution. In man the domain of instinct is, more than in other animals, controlled and tempered by what he has been able to learn through his intellectual power. 'With the higher evolution of an animal species, the significance of the role played by individual experience and learning generally increases, while innate behavior, though not losing importance, becomes reduced to simpler though not less numerous elements'.¹⁸⁾ Consequently there is no reason to regard instinct and learning as forces necessarily and forever at loggerheads, with our tragic selves the battleground of their discords. Instincts may be open, that is, may be channelled and regulated, often restrained, though not eradicated; they may be complemented by acquired behavior. Hence Ardrey remarks rightly that 'it is a paradox of sorts that one who defends the primacy of the instinct in the transactions of man finds himself defending the primacy of mind as well', and also defending 'the quality of human mind that in the end will complete the innate patterns'.¹⁹⁾ And far from seeing man as the victim of his animal instincts, Lorenz concludes his book on aggression, the instinct that he finds pervasive in our human constitution, by saying: 'I believe in the power of human reason, as I believe in the power of natural selection. I believe that reason will exert a selection pressure in the right direction'.²⁰⁾

What helps man above all in being a learning - and teaching - animal is the possession of speech. Through the intermediacy of language, and especially through the recent art of the durable encoding of language in writing, the single individual can be instructed, not just by the actual events that envelop him, but by the spoken and written reports about them. He may thus profit from the accumulated knowledge and wisdom of his society and his species, and this accumulation has been growing at an ever increasing rate of speed. The individual's personal experience will more often than not be vicarious. Conversely, the non-speaking

¹⁸⁾ Lorenz 1967, 42. ¹⁹⁾ Ardrey 1968, 256, 266-267.

²⁰⁾ Lorenz 1967, 290.

animal depends for quick and effective response to his surroundings largely upon this instincts, which one may therefore properly call the inherited wisdom, as distinct from the acquired one, of the species. What an animal learns from another by precept and example is very little at best.²¹⁾ The task before us now is to examine the place of human speech and language in the network of the innate and acquired behavior patterns of man.

There can be no doubt that linguistics, especially American linguistics of the 1930's, and 1940's was strongly oriented toward, indeed under the tutelage of, behaviorism. It has remained so in many respects, even though psychology itself has turned away from pure behaviorism, or at least modified it considerably.²²⁾ The

²¹⁾ That the swan parents teach the cygnets how to swim is an appealingly sentimental but nonsensical anthropomorphic notion; a newly hatched cygnet will swim if thrown into the water, even if he has never before in his life seen another swan, or water. Some say that a human baby will do the same; if so, the first thing he learns as he grows is not swimming but drowning. It has also been reported that the innate faculty of the homing pigeon to orient himself and to navigate, as distinguished from his learning to fly a path over an area that through practice becomes familiar to him, was greater in the inexperienced than in the experienced bird, as if learning initially confused rather than aided him. (Cf. the experiments by G. V. Y. Matthews, reported in Ardrey 1968, 126-127.) Similarly, experiments (also reported in Ardrey 1968, 122-123) by O. J. and A. Murie with deer mice, tiny animals that normally do not stray farther from their habitat than fifty yards, with a maximum of hundred yards in a lifetime, show not only that they were able to find their way to the nest if captured and released a mile from home, but also that subadults were better travelers than their experienced elders; and a young female, about five weeks old, performed best of all, finding her way to the nest over a distance of two miles.

²²⁾ It sometimes happens that a hypothesis or a theory, though having become partly or wholly obsolete among the scholars it immediately concerns, lives on in a neighboring field. The borrowers, having found it usable, but not being able to view it critically, and possibly not aware of its obsolescence, continue to adhere to the theory because it delivers results that appear useful, at least on the surface, though they may be fundamentally quite unsound or senseless. A good example of such delayed rejection is offered by glottochronology, or lexicostatistics (a method, as some will remember, for dating the age of a language - whatever that might mean! - based on the indefensible premise that the lexicon of all languages undergoes changes always at the same rate of speed): long since abandoned by linguists (cf. Bolinger 1968a, 132-133), it is still employed by anthropologists (most recently by Farb 1968, 233-235, in a popularizing book).

formula $S \rightarrow r \dots s \rightarrow R$, illustrating the progression from external stimulus S to the speaker's linguistic reaction r that becomes the hearer's auditory stimulus s , to the final R which is the hearer's reaction, with $r \dots s$ constituting the linguistic event itself, represents sheer behaviorism.²³⁾ It schematizes 'reaction mediated by speech', one of 'the two human ways of responding to a stimulus', the other being $S \rightarrow R$, the 'speechless reaction'.²⁴⁾ The linguist is enjoined to concern himself solely with the linguistic portion of the scheme, the linguistic reaction of the speaker to a stimulus, and the resultant linguistic stimulus that reaches the hearer.²⁵⁾ The direct consequence of this attitude was the banishment from linguistics of whatever occurred in or motivated the speaker (S) and the hearer (R), whatever went on in or was contributed by their thinking ('mentalism' was the anathema hurled against all offenders, and 'mind' became a four-letter word), including the semantic content of the message ('meaning' was relegated to a metalinguistic limbo, and languages were analyzed without reference to it – at least in theory, while in practice the 'shortcut' afforded by the inclusion of meaning was almost invariably employed). The retributive irony was that strict adherence to the psychological doctrine of behaviorism in linguistics proscribed all concerns with psychology. As a matter of fact, behaviorism was to Bloomfield and his successors not just a psychological theory but the very embodiment, the essence of the scientific method itself. It was upon it that linguistics had to be founded if it was to be a science. The trouble was that linguistics was thus made to put on all the trappings of a natural science, even though it cannot but be regarded as a social science for the most part.²⁶⁾ (Curiously enough, that portion of language intercourse which is open to inquiry by means of the natural sciences – articulatory and acoustic phonetics –

²³⁾ Cf. Bloomfield 1933, 24–26.

²⁴⁾ Bloomfield 1933, 26.

²⁵⁾ Bloomfield 1926, 153 and 154, in an article one might regard as his linguistic credo, refers explicitly to the work of the behaviorist psychologist Weiss. (At the time, Bloomfield and Weiss were colleagues at Ohio State University.) Cf. also Weiss 1925 (in the first volume of the journal *Language*!) and 1929.

²⁶⁾ Cf. Pulgram 1967.

was also declared to lie outside of linguistics by those most intent upon aligning linguistics with the natural sciences.) 'The tendency of social scientists to whore after theories drawn from natural science - physical or biological - has a long history. Something has been gained, but the mass of consequent error suggests that the price may well have been too high.'²⁷⁾

My intent is of course not to belittle the Bloomfieldian and other behaviorist schools; it is cheap to condemn those upon whose shoulders one stands. Indeed the behaviorist and positivist type of linguistics was a justifiable and not at all senseless, although in part exaggerated, reaction against the often non-scientific and sometimes altogether fanciful endeavors of earlier, purely mentalistic linguistics.²⁸⁾ But the mentalistic damage had been done, not because one assumed the exertions of a mind (or will, or spirit), for there can be no denying that there is some power at work which sets the physical mechanism in motion, regardless of what we call it and regardless of our ability to perceive it as an organ or an event and to locate it somewhere in the physical body; the damage had been done because mentalists thought that they had explained something merely by intoning some words, as if incantation and onomancy could solve a problem. But clearly the contrary, the denial of the 'mind', or of whatever one wishes to call it, in the mechanistic, positivistic way is no solution either.²⁹⁾ Difficulties do not go away just by our pretending that they are not there. 'One must not believe that by saying "sublaryngeal activity" instead of "ideas" progress has been made; indeed the mentalistic terminology is today certainly the most adequate (and in many cases the only

²⁷⁾ McRae 1958, 298.

²⁸⁾ Cf. Bloomfield 1933, 142, and 32-33, respectively: 'For the mentalist, language is the expression of ideas, feelings, or volitions. The mechanist . . . believes that mental images, feelings, and the like are merely popular terms for various bodily movements . . .' 'The mentalistic theory . . . supposes that the variability of human conduct is due to the interference of some non-physical factor, a spirit, or will, or mind . . . that is present in every human being . . . The materialistic (or, better, mechanistic) theory supposes that the variability of human conduct, including speech, is due only to the fact that the human body is a very complex system.'

²⁹⁾ On mentalism, anti-mentalism, and anti-anti-mentalism see Pulgram 1967, 76-84.

possible one) for numerous questions that the linguist must face. The query that one must put is this: how far does one get, today, by conducting linguistic analyses rigorously in terms of stimulus and reaction? The answer is that, in present conditions, one not only does not get far, but one does not move at all, one cannot even begin the description'.³⁰) Hence the true and indisputable achievement of Bloomfield's and Bloomfieldian linguistics consists 'not so much in advocating abstract methodological principles, as in presenting a rigorously and coherently formal rather than psychological description of grammatical facts'.³¹)

By now, however, we have entered upon a period of linguistic theory that reacts strongly against structuralist positivism. And I shall suggest that in the refutation of structuralism by transformation grammar there is implicit not only the rejection, long overdue, of behaviorism in linguistics, but also a veering toward notions reminiscent of ethology. But since to my knowledge no transformationist linguist has explicitly referred to ethology, the convergence, albeit asymptotic rather than complete, is all the more interesting.

If one were to seek the structuralist roots of transformation grammar, one would be likely to come, not upon Bloomfield, but upon his sensitive and wise contemporary, Sapir; for it was Sapir who kept himself free from the excessive and sometimes crippling rigor which the Bloomfieldians chose to impose upon themselves.³²) Of course, transformation grammar, as envisaged by its founder, Chomsky, does not return, any more than does Sapir, to the vague idealism and mentalism of the late nineteenth and early twentieth centuries. Instead, it proposes an analysis based upon a system of ordered rules. These rules, however, do not emerge from a behavioristic source of reflexes and reactions, but rather from inborn notions of grammaticality, from an 'intuition' on the part of the speaker as to what is grammatical, or 'well-formed'.³³) Thus the

³⁰) Lepschy 1966, 108-109. (My translation from Italian. An English translation of the entire book is forthcoming.) See also Schlauch 1946; Alkon 1959; Katz 1964.

³¹) Lepschy 1966, 111. (My translation.) Cf. also Pulgram 1967, 78-81.

³²) See Sapir 1921.

³³) Well-formedness, or grammaticality, or indeed correctness is a somewhat elastic criterion, as are all criteria of social behavior. Both structur-

user of language is in possession of some faculty, of a 'competence', whose nature is not discoverable from the mere examination of his utterances, his 'performance'. To be sure, competence is attested by, and judgeable only through, performance; but it does not follow that the two are identical. Nor does it follow that the description of the competence must precede the description of the performance. (In the ensuing discussion I shall refer only to those principles and aspects of transformation grammar that have a bearing on my topic; no total endorsement need be inferred.)

Of crucial importance here is the concept of intuition. It is, or at least used to be, asserted by transformationist grammarians that the user of a language is informed by intuition, that he 'intuits', whether an utterance is or is not grammatical. Whether it is said that all or a portion of language is innately specified, whether it is said that every user of a language functions in obedience to innate ideas about his language – whatever the wording or the terminology, one is inescapably led to think of some inherited predisposition situated somewhere inside the user of the language. For example,

alists and transformationists err, it seems to me, in their views of this concept. If structuralists maintain that *he arrived* is not ungrammatical, they are of course right; but they ought to add that it belongs to a grammaticalness other than that of Standard English. Saying that everything that can be said in 'English' is ipso facto grammatical, overlooks the fact that there is no such thing as a grammar of 'English' but only various grammars of all kinds of dialects which may be subsumed under the name English, and that a single grammar and a single grammaticalness can refer but to one of them at a time. Transformationists, on the other hand, who declare that, for example, *I wanted John to go* and *John wanted me to go* are well-formed, but that *I wanted me to go* is not (so Bach 1964, 8), employ an indefensibly narrow criterion of well-formedness. Apparently the last phrase, which is surely well-formed on the phonological, morphological, syntactical, and lexical levels, is rejected because it is semantically not well-formed, or senseless, or at least exceedingly odd. But if one leaves the most pedestrian and unimaginative uses of language, it not only makes good sense but may even be of some stylistic use: 'I wanted me to go, but my body did not obey my will and I remained rooted to the spot.' (The following sentence occurs in Bach 1964, 186, and is no doubt considered grammatical by its author: 'Whether one arrives at a hypothesis by sifting vast amounts of material or whether it pops into one's head while shaving is irrelevant.' Yet it clearly alleges, by its grammatical structure, that the popping hypothesis is shaving.) See also Bolinger 1968b, and the remarks on the famous *colorless green ideas sleep furiously?* in Pulgram 1969.

if it is revealed to the speaker by intuition that in *John is easy to please* somehow *John* is the object, whereas *John* is the subject in *John is eager to please*; if intuition tells him that *flying planes can be dangerous* is but the surface expression of two underlying structures that can be rendered as *to fly planes can be dangerous* and *planes that fly can be dangerous*: then intuition refers to something that the user of language has not learned but possesses innately. I can conceive of no other good reason for the use of the word intuition in these circumstances (and I need not assume that there is a bad reason, say, mere sloppiness, in that intuition just stands for experience, or knowledge).³⁴ Indeed I take it that intuition was employed in explicit protest against the behaviorist view that the use of language is mastered by mere imitating, or analogizing, or acquiring of habits and reflexes, or by differential reinforcing of the child's verbal responses by adults, etc.; in other words, I take it that the use of 'intuition' affirms that the learning of grammar has something to do with man's innate capacity to use a grammar so as to generate well-formed utterances. It is in particular the astonishing capability of young children to attain mastery of their native language, or even to learn concurrently a second language, that speaks against the purely intellectual, non-intuitive process of acquisition: for children succeed in a very short time in this task of extraordinary difficulty, for which their powers of intellect alone are surely insufficient, acquitting themselves much better than do adults intent upon the same chore later in life. (But it is scarcely right to conclude that at the age of six the child knows his native idiom completely. One never does – and I am speaking not just in terms of vocabulary.)³⁵ Children must possess (if I now may return to the terminology of ethology used earlier) an instinct that guides them. One cannot object to this assumption on the grounds that it is unscientific, especially if ethology is sound, as I think it is.

³⁴ A critical reader of this article remarked that the transformationists' 'intuition' does not necessarily refer to *innate knowledge* but that, on the contrary, it normally means *learned knowledge* which is covert rather than overt, implicit rather than explicit. If that is so, then intuition is, I maintain, a poor term, misunderstood by most. But in any event, an innate knowledge, a real intuition or instinct, that is, an innate faculty is still needed to explain man's capability to acquire speech. See below.

³⁵ Cf. Bolinger 1968a, 7.

But there arises a dilemma of some magnitude. An instinct is, by definition, species specific; but a language is not. The instinct that informs one cat how to miaow (and to miaow rather than to bark) is the same that informs all other cats; nothing needs to be learned, indeed nothing more can be learned, and the instinct is closed. Research has shown that the singing of birds is somewhat more complex in origin: some birds receive all their vocal signals by inheritance, others, whose instincts are more open in this respect, acquire theirs at least in part through learning.³⁶ But whatever the manner of acquisition, all members of the same species sing alike, they all speak the same 'language', as it were. But the single species *homo sapiens*, or, if you will, *homo loquens*, speaks many different idioms.

To account for this variety of behavior through the notion that a child is born with an English or a Chinese or some other specific language intuition would be preposterous. Also untenable is the belief that a single intuition, or a single instinct, informs the speakers of all languages concerning grammaticality in their respective tongues: surely the term intuition would then be used in a very odd manner. Another hypothesis would be that the universality of intuition expresses itself in an actual universality of grammar; but this will not do, for while it is true that a number of grammatical universals can be extruded, one cannot perceive anything like a universal human grammar – except in the sense that grammar itself is a universal, that every language must have a grammar. (It is significant, by the way, that structuralism acted upon the overriding tenet that languages are different, and that each constitutes a separate, unique, enclosed system not commensurable with others, while transformation grammar tends toward an emphasis on the similarity of all languages.)³⁷ The

³⁶ Cf. Ardrey 1968, 24.

³⁷ Cf. Lepschy 1966, 176: 'Chomsky prefers to speak of "innate ideas", or, as one might translate the phrase in terms of the natural sciences, of hereditary predispositions: this at least underscores the existence of an unsolved problem rather than setting the problem aside under cover of a superficial scientific terminology which in reality explains nothing. More disturbing than this "idealistic" aspect is the recourse (found ever more frequently among logicians and recently some linguists) to the requirement of the UNIVERSALITY of grammar.' (My translation.)

conclusion seems justified that a species specific instinct is responsible for whatever is species specific, and implicitly universal, in human language, but that the great variety of language activity expressed in many different languages and grammars must be laid to other causes. In a way this leads us back to the old *langage - langue* distinction, but seen now from a different angle. In any event, it does appear to be of the greatest importance to keep carefully apart the species specific innate faculty of speech, and its implementation in a given language.

A recent and important publication in transformation grammar has in fact come to the same conclusion as regards the meaning and the place of intuition - without using the word itself, possibly so as to dissociate the present authors from its earlier employment and connotations. Instead, reference is made to 'significant linguistic universals [which] are those that must be assumed to be available to the child learning a language as an a priori, innate endowment [N.B.]. That there must be a rich system of a priori properties - of essential linguistic universals - is fairly obvious from the following empirical observations. Every normal child acquires [N.B.] an extremely intricate and abstract grammar, the properties of which are much underdetermined by the available data. This takes place with great speed, under conditions that are far from ideal, and there is little significant variation among children who may differ greatly in intelligence and experience. The search for essential linguistic universals is, in effect, the study of the a priori faculté de langage that makes language acquisition possible under the given conditions of time and access to data.'³⁸) This is surely an explicit statement on the dichotomy of the innate (intuitive) faculty of speech and the acquired knowledge of a language.³⁹) It is elaborated

³⁸) Chomsky-Halle 1963, 4.

³⁹) Langacker 1968, in a work obviously shaped by transformationist convictions, does not consistently keep the two apart, which leads to theoretical vacillations and contradictions (Chapter IX, especially 233-240). It is said, for example, that according to the rationalist view (which the author adopts, rejecting the empiricist view) man has 'language' innately specified almost in its entirety, which includes both the capacity for 'language' and most of the structure of 'language', and that thus the role of learning is minimal; yet it is also said that the child does not genetically inherit a specific 'language' but only the capacity for 'language', and that he must

in the following statement: 'In acquiring a language, a child does not memorize the utterances he hears; rather, he somehow utilizes those utterances to construct for himself a grammar, that is, a collection of rules in accordance with which he can produce and understand an unlimited number of utterances, many of them new to him and not similar in any significant sense to those previously encountered.'⁴⁰)

Not dissimilar, though reached by an entirely different approach, is Lenneberg's resonance theory of language acquisition, according to which the child reacts to the language he hears like a resonator to sound.⁴¹) '... the child's hearing of French [results] in his speaking of French, each natural language being a selected frequency range that is capable of eliciting resonance.'⁴²) Put thus boldly one may conclude that the child does not really learn his language but somehow resonates to it – which of course raises the question whether he somehow already has French in him, which is made to resonate by his hearing it from his environment; and that does seem somewhat mystic a process.⁴³) But if once more one distinguishes, as Lenneberg himself appears to be doing, between the child's 'language readiness [which] is a state of latent language structure' and 'the unfolding of language [which] is a process of actualization in which latent structure is transformed in realized structure',⁴⁴) or – as I should put it – between the faculty of speech and the learning of the language, then resonance means no more than the child's innate state of attunement to those phenomena around him which are language, and of which he can acquire a

learn that 'language' which is spoken around him among all possible human languages – a process in which learning surely cannot be minimal also. The confusion arises, I think, because the single term 'language' is used sometimes with the meaning of both faculty of speech and a given idiom, and sometimes with either one or the other. If Langacker actually agrees with the Chomsky-Halle view of duality, he certainly obscures verbally his opinion.

⁴⁰) Chomsky and Halle 1968, 249.

⁴¹) Lenneberg 1967, Chapter 9: Toward a biological theory of language development.

⁴²) Lenneberg 1967, 373.

⁴³) Objections have been raised. Diller 1968, calls resonance a 'disastrous metaphor'. But is not that the trouble with all metaphors in science?

⁴⁴) Lenneberg 1967, 376.

mastery thanks to this attunement. This interpretation seems to be borne out by the following words: 'Notice that the resonance phenomenon in man is actually an aspect of his peculiar and species specific ontogenetic [N.B.] history.'⁴⁵) As regards the innate universals of *langage* and the particulars of *langue*, these words apply: '... it is our "mode of calculating with categories" that is universal, but the categories themselves are not fixed nor the particular device of the many possible operations.'⁴⁶)

Let us now pursue this further, and examine in what way the theses of transformation grammar converge with what one would have to say on the same subject in terms of ethology.

A language is part and parcel of the social and cultural baggage which man acquires and carries with him through life, none of it necessarily in a stable, unalterable form. Though some cultural traits seem to be universal, they are not for that reason species specific, that is, an inherent property of the species. On the other hand, what is species specific is universal by implication, a fortiori – as is the case with the faculty of possessing, and behaving in accordance with, a culture. In other words, the single biological species of man, characterized by the innate and therefore universal necessity to have a culture, is subdivided into numerous and varied cultural, including linguistic, units. In these units one may discern certain universal but not species specific traits (for example, the wish to adorn oneself, the belief in extra-human, superhuman powers, etc.).

'Culturally developed social norms and rites are characteristic of smaller and larger human groups much in the same manner as inherited properties evolved in phylogeny are characteristic of subspecies, species, genera, and greater taxonomic units. Their history can be reconstructed much by the same methods of comparative study. Their divergence in historical development erects barriers between cultural units in a similar way as divergent evolution does

⁴⁵) Lenneberg 1967, 392. He also refers specifically to ethology: 'Sometimes it is said that the general claim of species specificity of behavior or the postulation of innate factors that determine such behavior is a return to the preformist position of eighteenth-century developmental theory. Nothing could be farther from the truth. Modern ethology is as epigenetic as embryology itself is today.'

⁴⁶) Lenneberg 1967, 377.

between species; Erik Erikson has therefore aptly called this process pseudo-speciation.⁴⁷⁾ This is of course predicated upon man's urge to become a member of a group or of a society larger than the family unit, which 'is certainly something that has been programmed into the prehuman phylogeny of man'; but since not all of humanity has so far formed a single society and behaved according to a single culture, it follows that 'the distinctive properties of any group which make it coherent and exclusive are norms of behavior ritualized in cultural development'.⁴⁸⁾

Now it is plain that the various languages are such 'culturally developed norms ... of behavior' distinctive for various groups, and that therefore one may ascribe their origin, too, to a process of pseudo-speciation. They also share, despite their variety, certain universals, which again are not for that reason to be regarded as species specific in the sense of being a portion of our human endowment (e.g., the presence in a message of limitable and extractable units of sound and form);⁴⁹⁾ but the species specific faculty of speech is, again, implicitly a universal. The Chomsky-Halle statement to the effect that 'the search for essential linguistic universals is ... the study of the a priori faculté de langage that makes language acquisition possible' (quoted above, p. 326), ought therefore to be amended in the sense that some universals, namely, those traits that are coincidentally present in all language, are not for that reason a part of the faculty of speech.⁵⁰⁾ In fact, what most linguists have called 'language universals' are precisely of that kind, rather than of the kind provided by the innate faculty of speech.⁵¹⁾

⁴⁷⁾ Lorenz 1967, 76.

⁴⁸⁾ Lorenz 1967, 256.

⁴⁹⁾ It is worth noting here that human utterances of the mood-signaling rather than of the information-symbolizing variety, generally referred to as non-articulate (laughing, grunting, screaming, whimpering, crying, etc.), are also universals – perhaps species specific: it will be difficult to draw the line here as long as we do not study these noises and determine whether or not they are instinctive.

⁵⁰⁾ See above, fn. 36, Lepschy's remarks on the universality of grammar.

⁵¹⁾ Peizer and Olmsted 1969, 62 quote the following passage from McNeill 1966, 46-47: 'Suppose a child has these basic concepts [linguistic universals] as part of his biological endowment. Suppose that he knows, for example, what the relation is between verb and object ... By assigning the basic grammatical relations a place in the child's innate linguistic endowment, we

Indeed I am wondering whether at the present stage of the biological sciences we have any means of studying the faculty of speech beyond merely postulating its presence.

All this being so, the faculty of speech, part of our speciation and not of our cultural pseudo-speciation, cannot inform a user of language on the grammaticality of a given utterance in a given language, but only concerning species specific, universal properties – the most notable among which is of course the fact that all languages are systematic and structured. In other words, as human beings we have the innate power of comprehending and producing at will utterances that are 'grammatical'.

If a person is in some manner prevented from learning a language he remains dumb – that is, language-less, not speech-less, for his innate faculty of speech continues to reside in him, waiting to be activated by circumstances favorable to learning. Nor can the faculty of speech be bred out of man: it is quite certain that if several generations were prevented from acquiring a language (an experiment that is of course unfeasible in a civilized society), the first generation exposed to a language would immediately respond by learning it – exactly as the captive weaverbirds resumed their nest-building.

Man is innately a social and cultural animal, but lives in socially and culturally distinct societies; he is innately a speaking animal, but he lives in linguistically distinct societies. 'In other words, man's whole system of innate activities and reactions is phylogenetically so constructed, so 'calculated' by evolution, as to *need* to be complemented by cultural traditions.⁵²⁾ For instance, all the tremendous neurosensory apparatus of human speech is phylogenetically evolved, but so constructed that its function presupposes

assume them to be universal ... Thus a child who knew them could commence acquiring any natural language by striving to discover how each of these relations is expressed locally.' To this Peizer and Olmstead reply (62-63): 'Since linguistic "universals" are at present suggested by study of a small sample of the world's three or four thousand languages, any theory that depends heavily upon such universals is likely to be overturned by exceptions, unless the categories or relations taken to be universal are defined so vaguely as to account for little of linguistic interest.' To 'vaguely' one may add 'trivially'.

⁵²⁾ I believe 'implemented' would be a better term here. (Footnote added.)

the existence of a culturally developed language, which the infant has to learn.⁵³⁾ Hence one need not deny the validity of the concept of intuition as suggested in some transformation grammars in opposition to an anti-mentalistic strain of structuralism; but one must place it on the level of the faculty of speech rather than on that of language. The intuition endows man, not with grammaticality, but with the capacity to judge grammaticality. '... there is no reason for genetic emphasis to deflect attention from the systematic study of the learning process. In particular, it is logically possible that grammar be learned, even if the mechanism underlying perception of relations have a strong innate component.'⁵⁴⁾ The same authors go on to say that 'it is not logically necessary that a theory of language acquisition involve analysis mechanisms, or behavior-contingent mechanisms, but not both'. In a footnote they then cite Putnam 1966: '... invoking "innateness" only postpones the problem of learning; it does not solve it.'⁵⁵⁾

Speech and language are evolution's latest, and so far most successful, device in the service of animal communication. Others are sure to follow – though at the usual slow evolutionary speed, and most likely reserved for a species other, and more advanced, than *homo loquens*. But now we come face to face with a puzzling question. If as human beings we are instinctively endowed with the faculty to learn a language, then why, it will be asked, does this faculty operate so effectively and successfully only during childhood, when we learn our so-called native language, but so thoroughly forsakes us when we want to acquire a foreign language later in life? Second-language learning is a difficult chore at best, and in one

⁵³⁾ Lorenz 1967, 256.

⁵⁴⁾ Peizer and Olmsted 1969, 63. Note that under the heading 'Ideal specifications for a grammar-learning device' Peizer and Olmsted state among other requirements that 'the device should not assume grammar to begin with; substantive grammatical categories and relations are not part of the innate endowment of the device' (65). Further on, under the heading 'Assumptions and species-independent [as opposed to species-specific] abilities', they list certain capabilities that play a part in language performance but that are not the property of man alone: 'These, in short, are some [six in all] of the important abilities we assume are not unique to *Homo sapiens*' (66). In other words, a certain capability used for speech may be innate, hence universal, but not species specific to man.

⁵⁵⁾ Peizer and Olmsted 1969, 64, with footnote 1.

respect virtually an impossible one in that few adult learners ever attain a complete, 'native' mastery of a second language on the phonological level (the 'foreign accent' clings to most of us even under the best environmental circumstances). Can it be that we are guided by instinct in the acquisition of a language only when we are children, and that thereafter the extremely difficult task devolves exclusively, or to a much greater extent, upon our intellect? That is to say, does instinct in second-language learning, even though it still endows us with the necessary predisposition to learn a language at all, no longer guide us safely and efficiently as it did in first-language learning? Is second-language learning more akin to our learning of, say, mathematics or chemistry or carpentry? These are extraordinarily complex questions, concerned basically with a theory of learning – and unfortunately no satisfactory such theory is available at this moment. They are probably going to yield only to the combined endeavors of several sciences of both the biological and the psychological domains. In particular, we shall have to find out just what physical events and changes in the body are associated with what psychological ones in the process of learning, and with the retention by memory of what has been learned. A century after Gregor Mendel's experiments leading to the discovery of the basic laws of heredity, the actual agents in the process – genes, chromosomes, deoxyribonucleic acid (DNA), ribonucleic acid (RNA) – were finally discovered; some day we may find the agents similarly involved in learning and memory. But despite our ignorance of matters physical in this realm, it may be useful and instructive to examine the behavioral phenomena, and in particular to apply the ethological view of speech and language to language learning.

I have mentioned earlier (see above, fn. 21) that in some instances the instinctive behavior of animals appears not to be improved but, on the contrary, injured by after-childhood experience. One is tempted to conclude that instinct exerts its potency with greatest efficiency where learning and experience channels are not yet functioning – when in fact for that very reason instinct is most needed to inform the animal on how to behave. It seems not unreasonable, then, to surmise that at the time when the human child must learn his language, yet does not possess the necessary mental equipment and experience to cope with the task, instinct

is ready to operate.⁵⁶⁾ And that is a good reason why the learning of the first language appears virtually the equivalent of, and congruent with, the unfolding of the faculty of speech itself, that is, why we seem almost born with our first ('native') language, why we seem to have genetically inherited the language itself and not just the faculty of speech. And for the same reason the difficulty of learning a second language seems to increase with advancing age, running counter to the development of our mental faculties – precisely because we are in fact shedding the instinct and substitute intellectual for intuitive learning.⁵⁷⁾

Other deep-seated social and cultural norms, though they still may spring from the general source of innate instincts through pseudo-speciation, attain fixation at later times of one's life. If the espousal of non-linguistic norms by the individual comes under the heading of object-fixation, may one not then speak of the infant's acquisition of the native language, which is actually among the first social norms of his culture that the child acquires, as a process of object-fixation also? Lorenz suggests this: 'Apparently this process of object fixation can take its full effect only once in an individual's life. Once the valuation of certain social norms or the allegiance to a certain cause is fully established, it cannot be erased again, at least not to the extent of making room for a new, equally strong one.'⁵⁸⁾ Is this the reason why learning a foreign language during adolescence or adulthood is so difficult? Is it possible that man's object fixation on a first language during childhood preempts or exhausts his capability to learn a second language by the same process of object fixation, and that learning thereafter must proceed by intellectual, non-intuitive exertions?⁵⁹⁾

⁵⁶⁾ Cf. Lenneberg 1967, 378: 'Once the critical period during which resonance may occur is outgrown, one language is firmly established, and exposure to new and different natural languages is no longer resonated to'. (Here, too, the term 'resonance' must be understood with the reservations I mentioned earlier.) Concerning the firm establishment of 'one' language, see the following paragraph.

⁵⁷⁾ Recent experiments with learning during sleep, and research on the peculiar functions of REM ('rapid eye movement') sleep, seem also to suggest that some learning may take place efficiently at a subliminal, non-thinking level.

⁵⁸⁾ Lorenz 1967, 258–259. Cf. fn. 53, above.

⁵⁹⁾ It should be noted that in speaking of 'first' and 'second' language

Whatever Lorenz says on non-linguistic object-fixation is couched in hypothetical, if persuasive, terms. As regards linguistic behavior, a parallel hypothesis is all one may properly propose at this time; but plausibility and experience suggest that the truth may lie in that direction.

Finally, we must not forget that language is the medium through which we learn virtually everything we need so as to be human, that is, to live in a society and to possess a culture. But in order even to begin to learn, we must become speaking creatures first of all. If therefore evolution has made us instinctive possessors of culture, it could not but make us also instinctive and proficient learners of language in early infancy. Perhaps you detect a tinge of teleology in what I am saying; but nature and the universe confront us constantly and obdurately with a seeming purposefulness. Short of discovering in it the will of the divinity, we can only plead ignorance, or seek shelter in agnosticism – until we have learned better.

But if there exists this vast difference between early and later language learning (or first-language and second-language learning, as is generally said), one should think that the recognition of this fact has to be reflected in the pedagogy of second-language teaching, especially of the kind that occurs in post-infancy years, after the naturally most propitious time for it is past. Of course, it would be best if language learning were actually placed in the early years of life, and thus removed from the university or even from secondary education altogether, and put where it belongs, into kindergarten and the nursery. But we are, it seems, a long piece from this happy condition, and even under the best of circumstances there will

learning I am using the customary terminology that assumes that a child grows up a monolingual, as indeed the vast majority of children do. But, as I noted earlier, a child can indeed acquire more than one 'first' language, and the adult's 'second' may therefore be in fact a third or even a fourth. (All the research on childhood polyglottism, on retention and oblivion of languages beyond a principal one, is yet to be done, as far as I know.) Hence object fixation upon a 'first' language, preemption and exhaustion of a language learning capability in the child, should be understood as referring, not to a physical limitation or saturation occurring after the absorption of one single language, but rather to the passing of an age or maturity threshold beyond which language learning becomes a different performance.

always be a necessity to teach a foreign language to adolescents and to adults. Yet of late this kind of teaching, having come under the aegis of a linguistics excessively inspired by behaviorism, could not but be oriented behavioristically, that is, proceed on the stimulus-response model.

Under zealous and insistant behaviorist coaching, the conditioned reflex was regarded by many structuralists (but not by all; structuralism must not be simply equated with behaviorism) as the immediate and exclusive agent involved in first-language learning, as indeed in any kind of learning; and for second-language learning another process seemed to be even less suitable, a fortiori. Hence it was assumed that the student is best served if he is made to learn the second language exactly as he did, allegedly, the first, namely, by acquiring in the manner of the infant and the child conditioned reflexes. It should be observed that automatic reaction to linguistic stimuli was thereby not only made the *goal* of second-language instruction (and there is nothing wrong with that) but also proposed as the *method* of instruction (and there is everything wrong with that).

A pedagogue assures us solemnly that 'the infant learns the knack of language through reinforcement of his behavior by those around him rather than by imitation'.⁶⁰ (This declaration somehow manages to overlook that only such phenomena in the child's vocal behavior as are in fact good imitations of adult language will be the object of reinforcement in the first place: continued gurgling and spluttering will not be reinforced, but *mama* and *eat* and *tell me a story* will.) As regards the role of instinct, or of a genetically programmed faculty, the same pedagogue says: 'Credit is due the behaviorists for ridding psychology of a great clutter of old wives' tales about faculties, instincts, and the like'.⁶¹ With this theoretical background on first-language learning, one will not be suprised to read that 'the single paramount fact about [second-]language learning is that it concerns, not problem solving, but the formation

⁶⁰) Brooks 1964, xi. But see below, fn. 64.

⁶¹) Brooks 1964, 47. Note the date, at which the psychologists had already come to avoid the mechanistic approach of narrow behaviorism, even though they did not, to be sure, return to the idealistic view which had tied psychology to philosophy for so long a time. I have remarked earlier (see above, fn. 22) on this type of lag in scholarship.

and performance of habits', and that 'the acquisition of non-thoughtful responses is the very core of successful [second-]language learning ...'⁶²) It is conceded that 'given [the learner's] psychological and physiological development and the environment in which he finds himself, it is unrealistic to suppose that second-language learning can be for him a mere repetition of the processes of learning the mother tongue';⁶³) but the implication is clearly that the reason for this is to be sought in the condition and the environment of the learner, and not in the different nature of the learning process.

The pedagogical key to the acquisition of these automatic language habits is, as everyone knows by now, pattern practice. 'Since every speaking person has mastered his own [first] language through imitation and analogy and without the benefit of analysis, it stands to reason that something of this ability will aid him in the learning of another language. Pattern practice permits this ability to function.'⁶⁴) And pattern practice is defined as 'the learning of language structure through the repetition of utterances in which the patterns (of sound, order, form, and choice) either are identical or have only small and consistent differences. It makes the explanation of grammar largely unnecessary and encourages the function of analogy'.⁶⁵) And it is by analogy, rather than by analysis, 'that we learn our mother tongue, and thus ... we can make the best progress in a new language'.⁶⁶)

Language teaching according to this design was in no small measure a reaction against the intolerable and fruitless practice of converting a language class into a lecture on grammar, often a grammar ill-devised with respect to both facts and arrangement of facts (and it is the undying merit of structuralism to have taught us how to design a grammar that most truthfully and coherently reflects the formal structure of a given language). But the pendulum

⁶²) Brooks 1964, 49 and 62.

⁶³) Brooks 1964, 56.

⁶⁴) Brooks 1964, 147. Note that in this passage imitation, having been explicitly rejected earlier (on p. xi; see above, fn. 60), is now admitted as an instrument of first-language learning. See also Brooks 1964, 152-163, Chapter 11: Pattern practice.

⁶⁵) Brooks 1964, 275.

⁶⁶) Brooks 1964, 263.

was swung too far over to the other side, and all talk about grammar was enthusiastically proscribed, in the pious – but, as it turned out, unjustified and unfulfilled – hope that language could be taught in a mechanical way by creating habits and without explicit statement of rules. (As a matter of fact, since the fully orthodox exclusion of reference to grammar revealed itself to be an unbearable constraint – after all, language *is* grammar – the term ‘grammar’ itself was exorcised and replaced by ‘structure’, on the disingenuous premise that grammar may not be taught but that structure may. *Chassez le naturel, il revient au galop.*)

The basic fallacy in all this is the notion that language is but a set of habits, or habitual behavior, and that the acquisition of some automated reflexes by means of pattern practice is equivalent to language learning.⁶⁷⁾ This is curious enough a position; but it becomes untenable when not only grammatical explanation but also reference to meaning – i.e., translation – is prohibited. Yet the idea that second-language learning should, or even can, be achieved without there taking place somehow, somewhere in the learner, a decoding of the foreign and re-encoding into the known language, strikes me as preposterous. I cannot help wondering what language or languages the pedagogue himself learned in that way, if he learned one at all. The error lies of course again in the specious parallelism with first-language learning, where indeed no translation in the learning process takes place. But this transference makes no sense, because just as first-language learning occurs necessarily upon a clean slate, from *tabula rasa*, so second-language learning occurs inescapably through the medium of the already known first-language.⁶⁸⁾

Orthodoxy also requires that occupation with the written language, the reading and the writing of it, be delayed, on the unproven and improbable view, also due to equation of second-language with first-language learning, that only after having mastered some aural-oral proficiency is the student ‘ready’ to deal

⁶⁷⁾ I quite agree with Chomsky and Halle 1968, 4, ‘that there is . . . no sense of the term “habit” in which the normal use of language can be described as some kind of “habit system” or as “habitual behavior”’.

⁶⁸⁾ Cf. Bolinger 1968a, 293.

with the written word, just as the child learns to speak and hear first, and to read and write only later in school.⁶⁹⁾

Language teachers are coming around to think that the results of this method (often called 'linguistic method', even though it is based on just one peculiar aspect of one kind of linguistics, and generally practiced by non-linguists in the first place) are dismal at best; in fact, many 'reading courses' and grammatical explanations are returning upon the scene. The members of an entrenched establishment of foreign language pedagogy (consisting nowadays in a large measure of persons claiming expertise in 'applied linguistics', an estate that, they seem to think in the customary manner of Educators in all fields, absolves them from the onerous task of studying the subject, in this case linguistics, first) will no doubt dissent vociferously. But the opinion is coming to the fore that the teaching method aiming toward implanting conditioned reflexes and automatic habits is dull, unrewarding, intellectually numbing – and ineffective.⁷⁰⁾ The cause of this failure lies, it seems

⁶⁹⁾ In my own language learning I have found any attempt to follow this ordering of events an intolerable and stultifying hindrance. I quite agree with Pucciani and Hamel 1967, 11: 'The statement that language is spoken before it is written may have intellectual [i.e., chronological] validity; it is a pedagogical *non-sequitur*. . . That language as a general human phenomenon is spoken before it is written is no reason why a student should learn to say *le livre* before he learns to write it.' And again, 13: 'The natural primacy of all spoken language over all written language is the linguist's and anthropologist's statement of fact, supported by his own professional authority, which merely asserts that there never have been instances at any time of natural languages which were written before they were spoken. This is indisputably true. Nonetheless it is a statement which contains little value for the classroom teacher.' In fact, there is no practical evidence (I am ignoring here some contrived statistics) that the pedagogical primacy of the spoken, and neglect or delay of the written language has produced significantly better results than equal participation of all skills, with emphasis on the student's intellectual effort rather than reflexive reaction. And there is no evidence outside the theorist's conviction that the learning of dead languages (a dead language being one that is not native to any now living speaker), which one does not plan to use orally, is rendered easier and more efficient by means of the oral-aural approach.

⁷⁰⁾ Sweet 1967, 145, lists three assumptions upon which pattern practice is based, the last of them being that 'language learning consists of forming habits of automatic response rather than slow and painful solution of complicated problems', which he himself had accepted and implemented in numer-

to me, in the short-circuiting of the adolescent and the adult student's most valuable instrument for language learning, his brain (note the phrase 'non-thoughtful response' in a passage cited above, p. 336), on doubly fallacious grounds: one, that second-language learning proceeds in the same way as does first-language learning, and two, that first-language learning takes place through the formation of habits and conditioned reflexes.

It seems that the lessons one can learn from ethology about human behavior have to be applied also to second-language learning. The post-infancy learner must be regarded as being genetically predisposed to be a user of a language by an innate capability for conceiving of 'grammar', and therefore as possessing the ability to learn a language, that is, to produce and understand grammatical utterances most of which he has never heard or made before. He achieves this skill somehow - we do not really know how - by learning or 'internalizing' grammatical rules; but we do know that he does so in a manner different from that of the infant and child, for reasons plausibly and persuasively suggested by the ethological thesis that some behavior patterns are innate and undergo fixation early in life without, or before, apposite cerebral activity.⁷¹) Not

ous pedagogical works dealing with Latin. But he adds now in a footnote, with reference to his latest work, *Artes Latinae*, that 'this assumption has been modified . . . It now appears that language learning is both automatic acquisition of habits and problem solving. If problem solving did not enter into the process, a speaker of a language would never be able to construct an utterance which he had not heard before or indeed even to understand a new one. In learning to read and understand a sophisticated literature like Latin, problem solving is of great importance'. (Of course, there is nothing peculiar about the Latin language or the Latin literature that would make problem solving in learning it more important than in learning other languages, living or dead.) Pedagogues less perspicacious and less well informed than Sweet will no doubt need a generation or two to come to the conclusion that problem solving - in language learning and in other fields - is not a painful or a discouraging experience to a human being equipped with a brain.

⁷¹) What Chomsky and Halle 1968, 3, say about the first language applies equally, excepting the manner of acquisition, to the second: 'It is an important fact, too often overlooked, that in normal, everyday discourse one understands and produces new utterances with no awareness of novelty or innovation, although these normal utterances are similar to those previously produced and encountered only in that they are formed and interpreted by the same grammar, the same internalized system of rules.' This still does

being a pre-literate and intellectually incomplete child, hence more reliant upon intellect than on instinct in language learning, the learner may and ought to have the rules presented as such, so that his proper grammatical behavior may consist in his applying these rules when he produces the appropriate sounds. The notion that this is regrettable because it is 'problem solving' rather than speaking I find irrelevant, especially since the mastery of patterns through practice without problem solving does not lead to 'speaking' in any sense of the word. (As everyone knows, acceptable and successful pattern practice and pattern reproduction may occur without the speaker's comprehension of what he is saying – an impediment that, orthodoxy warns, must not be remedied by translation.) To be sure, a learner may eventually attain automatic proficiency and fluency in a second language – through practice in hearing and speaking and reading and writing discourse, but not through the bits and pieces of parroted patterns. There are no bargains, dear to those who believe that learning must be 'fun', to be had. Although basic skills of performance, whether in speaking a foreign language or cutting wood or playing the violin, appear, and in part certainly are, reflexive and non-thoughtful (even though we do not know by what internal mechanism or chemistry they got that way) there is no reason whatever to assume that the methods and processes leading to the acquisition of these skills must also incorporate reflexes and non-thoughtfulness: indeed experience and experiments suggest the contrary conclusion.

*Dept. of Romance Languages,
The University of Michigan,
Ann Arbor, Mich. 48104,
U.S.A.*

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not say how 'internalizing' takes place, or what the result of it is; but the answer will have to come, as I said before, from a theory of learning.

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