From:

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2 SOME TRAITS OF LANGUAGE

One estimate puts the number of languages in active use in the world today somewhere between three and four thousand. Another makes it five thousand or more. The latter is probably closer to the truth, for many languages are spoken by relatively few persons—several in one small area of New Guinea have fewer than a hundred speakers each[1]—and many parts of the world are still not fully surveyed. In Colombia, almost two hundred separate languages and dialects have been identified.[2]

"Dialect" is a key word here. What constitutes "one language"? Danish and Norwegian have a high degree of mutual intelligibility; this makes them almost by definition dialects of a single language. Do we count them as two? Cantonese and Mandarin, in spite of both being "Chinese," are about as dissimilar as Portuguese and Italian. Do we count Chinese as one language? To be scientific we have to ignore politics and forget that Denmark and Norway have separate flags and China one. But even then, since differences are quantitative, we would have to know how much to allow before graduating *X* from "a dialect of *Y*" to "a language, distinct from *Y*."

However that may be, the number of different languages is formidable and is quite awesome if we include the tongues once spoken but now

[1] Dye, Townsend, and Townsend 1968.

[2] Arango Montoya 1972.

dead. Languages are like people: for all their underlying similarities, great numbers mean great variety. Variety confronts us with this question: Do we know enough about languages to be able to describe language? Can we penetrate the differences to arrive at the samenesses underneath?

The more languages we study—and previously unexplored ones give up their secrets each year by the score—the more the answer seems to be yes. Learning a new language is always in some measure repeating an old experience. Variety may be enormous, but similarities abound, and one can even attempt a definition—perhaps something like "Human language is a system of vocal-auditory communication, interacting with the experiences of its users, employing conventional signs composed of arbitrary patterned sound units and assembled according to set rules." However we word it—and obviously no one-sentence definition will ever be adequate—there is enough homogeneity to make some sort of definition possible.

LANGUAGE IS HUMAN

Languages are alike because people are alike in their capacities for communicating in a uniquely human way. Every human infant has an instinct to babble—even those deaf at birth do it, and those cut off from it by illness or surgery will resume it afterward. The incredibly complex system that constitutes every known language is mastered in most of its essentials before a child learns to divide ten by two. "Intelligence" as we generally understand it is not a requirement, yet no other animal has the same power. The most that any of the great apes has been able to manage—with intensive training—is to learn a manual sign language well enough to communicate meanings at the level of a four-year-old child (see page 309).

LANGUAGE IS BEHAVIOR

Our five-hundred-year romance with printer's ink tempts us to forget that a language can disappear without leaving a trace when its last speaker dies, and that this is still true of the majority of the world's languages, in spite of the spread of presses and tape recorders. Written records and tape recorders are embodiments of language, and writing in particular has evolved to some extent independently; but the essence of language is a way of acting. Our habit of viewing it as a *thing* is probably unavoidable, even for the linguist, but in a sense it is false.

What *is* something thing-like, in that it persists through time and from speaker to speaker, is the system that underlies the behavior. In the form in which speakers acquire it, it goes by various names—competence, knowledge, *langue*—to distinguish it from performance, or speech, or *parole*, or whatever else we may call its practical use at any given moment. Competence is to performance as a composer's skill is to an improvisation or the writing of a composition. This is what makes language so special. Breathing, grasping, and crying are also ways of acting, but we are born with them; no one gets credit for being a good breather or a good crier. With language, all we are born with is a highly specialized capacity to learn. Probably as the child acquires it the system is engraved somehow on the brain, and if we had the means to make it visible we could interpret it. For the present all we can see is the way people act, and linguists are useful only because, since we are not mind readers, we need specialists to study the behavior and infer the system.

THE MEDIUM OF LANGUAGE IS SOUND

All languages use the same channel for sending and receiving: the vibrations of the atmosphere. All set the vibrations going in the same way, by the activity of the speech organs. And all organize the vibrations in essentially the same way, into small units of sound that can be combined and recombined in distinctive ways. Except for this last point, human communication is the same as that of many other warm-blooded creatures that move on or over the earth's surface: an effective way of reaching another member of one's kind is through disturbances of the air that envelops us.

Paradoxically, what sets human speech apart also sets it above dependence on any particular medium: the capacity for intricate organization. The science of phonetics, whose domain is the sounds of speech, is to linguistics what numismatics is to finance: it makes no difference to a financial transaction what alloys are used in a coin, and it makes no difference to the brain what bits of substance are used as triggers for language—they could be pebbles graded for color or size, or, if we had a dog's olfactory sense, a scheme of discriminated smells. The choice of sound is part of our human heritage, probably for good reason. We do not have to look at or touch the signaler to catch the signal, and we do not depend on wind direction as with smell—nor, as with smell, are we unable to turn it off once it is emitted.[3] Most important, we can talk and do other things at the same time. This would be difficult if we could only make signs with our hands.

[3] Sebeok 1962, p. 435.

Language is sound in the same sense that a given house is wood. We can conceive of other materials, but it is as if the only tools we had were woodworking ones. If we learn a language we must learn to produce sounds. We are unable to use any other medium except as an incidental help. So part of the description of language must read as if the sound that entered into the organization of language were as indispensable as the organization itself.

LANGUAGE IS HIERARCHIC

Though glib people may seem to talk in a continuous stream, language is never truly continuous. To convey discrete meanings there have to be discrete units, and breaking the code of a new language always involves as its first task finding what the units are. At the lowest level are bits of distinctive sound meaningless in themselves—the hum of an *m* or the explosion of a *p*—which occur in clumps of one or more that we call syllables. A syllable is the smallest unit that is normally spoken by itself. It is the poet's unit, the unit of rhythm and audibility.

Above the level of meaningless sounds and syllables are the levels that are segmented both for sound and for meaning. First are words and parts of words that have some recognizable semantic makeup, such as the prefix ***trans-*** or the suffix ***-ism.*** Above the word level is the level of syntax, which is itself a complex of levels, since the unit that we call a sentence is often made up of a combination of simpler sentences, usually in some abbreviated form; and these in turn contain smaller units termed phrases, such as the prepositional phrase ***to the west*** and the verb phrase ***ran fast.*** Still higher units have to be recognized—question-and-answer, paragraph, discourse—but the larger they get, the harder it is to decide just what the structure is supposed to be. Most linguistic analysis up to very recently has stopped with the sentence.

Stratification—this organization of levels on levels—is the physical manifestation of the "infinite use of finite means," the trait that most distinguishes human communication, the basis of its tremendous resourcefulness. Dozens of distinctive sounds are organized into scores of syllables, which become the carriers of hundreds of more or less meaningful segments of words, and these in turn are built into thousands of words proper. With thousands of words we associate millions of meanings, and on top of those millions the numbers of possible sentences and discourses are astronomical. One linguist calls this scheme of things "multiple reinvestment."[4]

[4] Makkai 1973.

Underlying multiple reinvestment is the "structural principle," whereby instead of having unique symbols for every purpose, which would require as many completely different symbols as there are purposes, we use elementary units and recombine them. With just two units at the word level, ***brick*** and ***red,*** plus a rule of modification, we can get four different meanings in answer to the request ***Describe the house:***

It's brick.

It's red.

It's brick red.

It's red brick.

LANGUAGE CHANGES TO OUTWIT CHANGE

Every living language is in a state of dynamic equilibrium. Infinitesimal changes occur in every act of speech, and mostly make no impression—they are within the bounds of tolerance, and are not imitated nor perpetuated, because hearers simply ignore them (for example, the fumbling of someone who talks in a hurry or coughs in the middle of a word). Now and then a scintillation is captured and held. We hear a novel expression and like it. It is adaptive—fits a style or names a new object or expresses an idea succinctly. Others take it up and it "becomes part of the language." The equilibrium is temporarily upset but reestablishes itself quickly. The new expression, like an invading predator, marks out its territory, and the older inhabitants defend what is left of theirs.

The vast open-endedness of language that results from multiple reinvestment is what makes it both systematic and receptive to change. The parts are intricately interwoven, and this maintains the fabric; but they are also infinitely recombinable, and this makes for gradual, nondestructive variation. To see the value of such a system we can compare the linguistic code to the genetic code. The two are similar in many ways—so much so that geneticists themselves refer to "the syntax of the DNA chain." The hierarchical organization of meaningful units in language—from words through phrases and sentences and on up to discourses—is paralleled by ranks on ranks of genetic sequences with their inherited messages that control growth and development. Underlying both codes are meaningless subunits, called phonemes in language and nucleotide bases in genetics.[5] The changes in language and the mutations in genetics

[5] See Jakobson 1970, pp. 437–40.

serve a similar purpose: to outwit the random changes in society and in nature. One cannot predict an accident, but one can provide enough variety to ensure that at least one variant of a living form will be resistant enough to survive. This is no guarantee against disaster, and languages as well as species do perish. But it suffices to cope with the normal rate of random intrusions.

LANGUAGE IS EMBEDDED IN GESTURE

If language is an activity, we cannot say that it stops short at the boundary of *verbal* speech activity, for human actions are not so easily compartmentalized. We cannot even say that it stops at the boundaries of speech, for we are informed by our eyes as well as by our ears. And it is not always easy to tell one kind of message from the other. A person speaking on the telephone who contorts his mouth into a sneer may be heard as sneering, because the sound wave is distorted in characteristic ways; yet the hearer reacts as if he had seen the sneer rather than heard it. Audible gesture and visible gesture have many points in common.

Gesture is the mode of communication that human beings have in common with the higher apes. One important theory has it that articulate language—the layered system that we have been describing—developed through its earliest stages in gestural—largely visible—form and only later was transferred to speech (see pages 312–14). Even today, children acquire language "in the midst of a large amount of non-verbal communication."[6] Gesturing and talking emerge at the same time. ***Bye-bye,*** one of the first words learned by most infants in our culture, is almost always accompanied by a wave of the hand.

Audible and visible gesture are usually termed *paralanguage* and *kinesics,* respectively. *Body language* is another word for kinesics, but is generally reserved for movements that communicate without being part of a clearly established code—we might say that they are unconscious, if we were sure what that meant. For instance, when one is seated just crossing the legs may convey a meaning—nonchalance, perhaps. Even when nothing appears to be going on at all, *something* may be communicated—there is a language of silence.[7] Skilled verbal entertainers know exactly when and for how long to pause, to let a point sink in; spoken language demands time for decoding as well as time for speaking, and not all the work of both can be done simultaneously. And silence is effective only when one commands the field and fends off

[6] Engel 1973.

[7] Bruneau 1973.

would-be interrupters. To avoid being interrupted while gathering their thoughts, speakers will use a kind of audible gesture called a *hesitation sound.* This is usually a low-pitched ***uh*** or ***unh,*** but other vowel qualities may be used. Sometimes words are employed for the same purpose: ***well*** in English, ***este*** ('this') in American Spanish. If you are asked what time it is and you know, for example, you will say without hesitation, ***It's ten-fifteen.*** But if you have to look at your watch you may say ***It's now—ten-fifteen,*** inserting a drawled ***now*** to stall and keep command of the situation. The amount of verbalized makeweight with which a speaker packs a conversation gesturally to keep from yielding the floor is incalculable. This is one of the great stylistic differences between spoken and written language, and is why the latter has to be pruned so carefully.

Gesture may occur alone or as an accompaniment to verbal speech. If a daughter approaches her father to discuss marriage and his only answer is to pace the floor, meaning is conveyed by body movement alone.[8] If the sentence ***Still, he did his best*** is accompanied by a pouting lower lip and a shrug of the shoulders, visible gesture is supplying an apologetic backdrop to speech. And if ***Oh, Jack's all right, but hell . . .*** is spoken with a deprecatory grimace on the last two words and with the pitch on ***hell*** dropping to a guttural creak, the result is a trio of verbal language, visible gesture, and audible gesture.

Gestural systems that are substitutes or virtual substitutes for spoken language are a study in themselves. The visual gestures of the American Sign Language used by the deaf and the sign language of the Plains Indians are the best-known examples. Whistle language and drum language (pages 45–46) are based in their own peculiar ways on speech, and telegraphic and semaphoric signaling are based on writing—that is, on spelling. The finger-spelling used by the Japanese is similar, but accompanies speech and is used to clear up ambiguities caused by the many words in that language which sound alike but have different meanings (like the English ***deign*** and ***Dane***).

The gestures, both audible and visible, that accompany ordinary speech are of two main types and four subtypes. The first main type is *learned* gestures. These are acquired as part of a speaker's culture, just as words are; and those of the first subclass, which can be called *lexical,* resemble words so closely that many persons regard the audible examples as "real words." In fact, a number of them have standard spellings: ***uh-huh*** for 'yes,' ***huh?*** for 'what?' ***hmn*** for 'I wonder,' ***tsk-tsk*** for the click of the tongue used to show disapproval, and so on. Visible gestures in this subclass include waving the hand for 'good-bye,' holding both hands out with palms up and shoulders raised for 'I don't know,' and putting the index finger against the lips for 'Be quiet' (often accompanied by the

[8] The example is from Key 1970.

audible lexical gesture ***shhh***). Other cultures may use entirely different lexical gestures, or similar ones with different meanings. Our gesture for 'Come here' is holding the hand out cupped palm up with the fingers beckoning; in some other areas—for example, Mexico—it is the same except that the hand is cupped palm down—which we might mistake for a greeting rather than a summons.

The second subtype of learned gestures is *iconic:* the communicator *imitates* some aspect of the thing signified. An audible gesture for 'sound of a bee' is ***bzzzz.*** For 'machine gun fire' a favorite of small boys is ***ah-ah-ah-ah-ah-ah,*** with a glottal stop. In some cases the actual sound is used as the symbol of itself—for instance, a snore. A visible gesture for 'round' is a circle described by the fingers; one for 'wide' is an expansive movement of the hands, palms facing each other, in front of the body; one for 'so-high' is the hand held at the indicated height above the ground. And a speaker who says ***I pushed him away*** is apt to execute a pushing motion with the hand at the same time; most descriptions of actions are thus embellished. Iconic gestures tend to be *analog*—more of something can be shown by more of the gesture, less by less (***bzz*** for a short buzz, ***bzzzz*** for a longer one); lexical gestures, on the other hand, are *digital*—more of them may add emphasis, but does not mean more of what they signify—***shhhh*** is not quieter than ***shhh*** but is a more vigorous command to be quiet.

The second main type of gesture is *instinctive,* with subtypes involuntary and voluntary. No one has to learn to laugh or smile or cry or dodge a blow or blink when an object comes unexpectedly toward the eyes. These actions are controlled by the autonomic nervous system and frequently cannot be avoided even with practice. The person who blushes easily betrays embarrassment in spite of himself. But the line between involuntary and voluntary is a shifting one. In human beings the limbic system of the brain, the part that controls involuntary actions, is overlaid by higher systems, and this leads to some measure of voluntary control of reactions that in other animals are purely automatic.[9] A sign of adulthood is the "insincerity" of originally autonomous actions. A smile is no longer a betrayal of feeling but a purposive act intended to please. The hollow laugh and the crocodile tear are instinctive gestures that have become part of etiquette. In the long run all instinctive gestures acquire a social significance and take on local modifications, which is one reason why members of one culture behave awkwardly when transplanted to another.

Instinctive gestures tend to *synechdochize*—a part disappears while a part remains and stands for the whole. A catch in the throat substitutes

[9] Lamendella 1975, Ch. 2, pp. 23, 24, 33.

for a sob; constriction in the pharynx and the resulting sound of repressed anger symbolizes rage and the impulse to inflict injury.[10]

All gestures, but instinctive gestures especially, cooperate with language in a total communicative act. While we can usually guess a speaker's intent, we may be unsure if the gestural part is extracted. In the following utterance,

You don't mean it.

everything can remain the same, yet with one's head held slightly forward, eyes widened, and mouth left open after the last word, the result is a half-question ('You surely don't mean it, do you?'), while with head erect, eyes not widened, and mouth closed afterward, it is a confident assertion. In the first case, cooperation is a kind of competition—the words declare, but the gesture asks. When this happens the gestural meaning is usually closer to the heart of the matter than the meaning of the words and syntax—a sentence like ***He's a great guy*** can be reversed in meaning by a knowing look (we call such remarks ironic). Gestures of pointing are often indispensable. The sentence ***He doesn't know you're on my side*** immediately preceded by a sidewise toss of the head in the direction of the person referred to makes the word ***he*** *deictic*—that is, pointing—in an actual situation. Without gesture, pronouns such as ***he*** and ***she*** must take their meaning from the context, as in ***Mary said she would.***

Gestures of the hands and head are used to reinforce the syllables on which an accent falls. A person too far away to hear a conversation can often tell what syllables are being emphasized by the way the speaker hammers with a fist or jabs downward with the jaw. How closely the two are related can be shown by a simple test: reversing the movement of the head—going up instead of down on each accent—in a sentence like ***I will nót dó it.*** It is hard to manage on the first attempt.

At the outer fringes of the system we call language is a scattering of gestural effects on speech, more curious than important. The ***m*** of ***ho-hum*** and the ***p*** of ***yep*** and ***nope*** come from closing the mouth as a gesture of completion. Certain gestures get tangled with sets of words and serve as a kind of semantic cohesive. The kinship of ***vicious, venomous, vituperative, violent, vehement, vindictive, vitriolic, vile*** (and indirectly ***vital, vigorous, vim***) is helped by the suggestion of a snarl in the initial ***v.*** Similarly there is a suggestion of lip-smacking in the last syllable of

[10] Fónagy 1971, pp. 45–46.

delicious, voluptuous, salacious, luscious that results in a new slang alteration or coinage every now and then—***scrumptious*** in the early 1800s, ***galuptious*** about 1850, ***cremations*** in the 1940s, the trade name ***Stillicious*** at about the same time, ***scruptillicious*** in teenage talk in the 1960s.[11]

In most accounts of language, gesture has been underrated or ignored. Body language, along with other bodily functions, has been a partially tabooed subject; even today one would feel embarrassed at saying to someone, "Why did you thrust your head forward when you said that?" though a question such as "Why did you say *absolutely* when you weren't sure?" is commonplace. As a reflection of this, but also because of their own traditions, linguists have concentrated on the language of information, propositional language, which is the only kind that *writing* can convey with a high degree of efficiency. But even this kind of language when spoken is signaled as true or false, positive or doubtful, welcome or unwelcome, by gesture; and all other forms of language—questions, commands, wishes, exclamations, denials—are heavily dependent on it.

LANGUAGE IS BOTH ARBITRARY AND NON-ARBITRARY

If people are to cooperate they must understand one another, and understanding depends on sharing a set of values. Sometimes we agree to agree deliberately. One person will say, "Let a_n represent the average strength at t_n time for successive intervals of 10 seconds' duration," and others for the sake of the argument will accept that person's values for *a*, *t*, and *n*. In such a case the arbitrariness and conventionality of the symbols and their relation to reality stand out boldly.

Language is similarly conventional and arbitrary. There is no need for us to worry about our different perceptions of what a dog looks like, feels like, or sounds like when it barks, in order to refer to one. If we are agreed on calling it ***dog*** we can give socially vital warnings like ***Mad dog!*** with the assurance of being understood. ***Dog*** has an arbitrary, conventional value in our society.

The obvious exceptions are few in number. If there were a close connection between the sound of a word and its meaning, a person who did not know the language would be able to guess the word if he knew the meaning and guess the meaning if he knew the word. Now and then we can do this: ***meow*** in English and ***miaou*** in French sound the same and mean the same. Yet even with words that imitate sounds this seldom

[11] *Boulder Camera* (10 June 1963).

happens (***to caw*** in English is ***croasser*** in French; ***to giggle*** in English is ***kichern*** in German), and elsewhere it is practically never found: ***square*** and ***box-shaped*** mean the same thing but have no resemblance in sound.

Arbitrariness comes from having to code a whole universe of meanings. The main problem with such vast quantities is to find not resemblances but differences, to make a given combination of sounds sufficiently unlike every other combination so that no two will be mistaken for each other.[12] It is more important to make ***wheat*** and ***barley*** sound different than to use the names to express a family relationship as a botanist might do. Our brain can associate them if the need arises more easily than it can help us if we hear one when the other was intended.

Syntax—the grammar of arrangement—is somewhat less arbitrary than words, especially in the order of elements. We say ***He came in and sat down*** because that is the sequence of the actions; if we said ***He sat down and came in*** it would have to mean that the opposite sequence occurred—perhaps he was being supported on his feet by someone else, and decided to get back into his wheelchair to propel himself into the room. To reverse the order we need a specific grammatical instruction, say the word ***after: He sat down after he came in.*** But arbitrariness lingers even without such traffic signs: ***ground parched corn*** has *first* been parched and then ground. Often the same meanings can be conveyed by dissimilar sequences: ***nonsensical,*** with a prefix and a suffix, means the same as ***senseless,*** with just a suffix; ***more handsome*** and ***handsomer*** are usually interchangeable.

The most rigidly arbitrary level of language is that of the distinctive units of sound by which we can distinguish between ***skin*** and ***skim*** or ***spare*** and ***scare*** the moment we hear the words. It was noted earlier that the very use of sound for this purpose was, while practical, not at all necessary to the system built up from it. And once sound became the medium, the particular sounds did not matter so long as they could be told apart. What distinguishes ***skin*** from ***skim*** is the sound of [n] versus the sound of [m], but could just as well be [b] versus [g]—there is nothing in the nature of skin that decrees it shall be called ***skin*** and not ***skib.*** The only "natural" fact is that human beings are limited by their speech organs to certain dimensions of sound—we do not, for example, normally make the sound that would result from turning the tip of the tongue all the way back to the soft palate; it is too hard to reach. But given the sets of sounds we *can* make (not identical, of course, from one language to another, but highly similar), arbitrariness frees us to combine them at will. The combinations do not have to match anything in nature, and their number is therefore unlimited.

[12] What happens when two words come to sound the same is treated in Chapter 13.

Still, arbitrariness has its limits. Where one thing stands for another—as pictures, diagrams, and signals do—it is normal to look for resemblances. A wiring diagram for a television set represents each part and connection in detail. If someone asks directions and the person asked points to the right, the direction of travel is also to the right. Most gestures have at least an element of guessability about them; the lexical gesture for 'I don't know' described above uses empty hands to mean 'I have no information.'

Even the distinctive units of sound are not always arbitrary. There seems to be a connection, transcending individual languages, between the sounds of the vowels produced with the tongue high in the mouth and to the front, especially the vowel sound in ***wee, teeny,*** and the meaning of 'smallness,' while those with tongue low suggest 'largeness.' The size of the mouth cavity—this *ee* sound has the smallest opening of all—is matched with the meaning. We ***chip*** a small piece but ***chop*** a large one; a ***slip*** is smaller than a ***slab*** and a ***nib*** is smaller than a ***knob.*** Examples crop up spontaneously—"A ***freep*** is a baby ***frope,***" said a popular entertainer in a game of Scrabble—or in modifications of existing words—for example, ***least*** with an exaggeratedly high tongue position for ***ee,*** or the following:

> "That's about the price I had in mind," said Joe Peel. "Eight to ten thousand, but of course, it would depend on the place. I might even go a ***leetle*** higher."[13]

Not only the vowels, but also, in some languages, certain consonants are symbolic of size. And besides size there is the related notion of distance ('small' = 'close,' 'large' = 'far').[14]

The curious thing about the balance between arbitrariness and its opposite is that, given language (or anything else) as a fact of life, much of the arbitrariness falls away. We can say that the shape of an apple is arbitrary because it "might as well' be square. But apples are a fact of life, and they are not square; and this relates them, non-arbitrarily, to the other fruits in the universe of fruit. The letter F "might as well" have the shape  , but it does not, and this relates it non-arbitrarily to the other shapes of the same letter:  and f. If we accept the initial arbitrariness of the existence of almost anything, non-arbitrariness follows in most of its subsequent connections. The English language seems inexcusably arbitrary to the speaker of French, yet it is a world to itself, and within that world there are countless more or less self-evident relationships. Take the word ***minuscule.*** Most writers now spell it

[13] Frank Gruber, *The Silver Jackass* (New York: Penguin Books, 1947), p. 45.

[14] See page 275.

miniscule and pronounce it accordingly. They associate it with the prefix ***mini-.*** And given the words ***bolt*** (of lightning), (frisky) ***colt,*** and ***jolt,*** it is natural to tie a similar jarring meaning to ***volt*** (named for Alessandro Volta). The more volts the bigger the jolt.[15]

Almost nothing about language is arbitrary in the sense that some person sat down on some occasion and decided to invent it, the way a mathematician would invent a new symbol, picking the size and shape that is most convenient without regard for any resemblance to any other related thing. Virtually everything in language has a non-arbitrary origin. Some things evolve toward greater arbitrariness, others toward less.

LANGUAGE IS VERTICAL AS WELL AS HORIZONTAL

When we hear or look at a display of speech or writing, the dimension we are most conscious of is a horizontal one—the stream of time in speech, the span of lines in writing. Almost everything that we put in a message has to go to the right or left of something else. There is no "above" or "below," "behind" or "in front." Much that happens when a language changes is due to collisions or confusions along this course. It may be only a lapse, as when a speaker, intending to say ***discussing shortly,*** says ***discushing,*** bringing a sound that belongs on the right over to the left. Or it may be permanent, as in ***horse-shoe,*** in which everybody makes the ***s*** of the first element like the ***sh*** of the second. Changes in meaning may worm their way into such a change in form. For example, speakers distinguish ***got to*** 'had the privilege of' and ***got to*** 'be under obligation to' by using the unchanged form for the first meaning and a changed one for the second: ***I got to get off, I gotta get off.***

If people merely parroted what they had heard before and never did any assembling of utterances on their own, it is conceivable that language might have just a single dimension. But they do assemble, and the question is, where do they go for the parts? It must be to a stockroom of some sort. And stockrooms require a scheme for storage, or we could never find what we are looking for. This is the vertical dimension of language. It is everything that our brains have hoarded since we learned our first syllable, cross-classified in a wildly complex but amazingly efficient way. Nothing less depends on it than the means to summon whatever we need the instant that we need it at the same time that we are framing our ideas for the next phrase and probably still uttering the last one. This vast

[15] For a discussion of the relativity of arbitrariness according to the linguist Ferdinand de Saussure, see Wittmann 1966, pp. 88–90. See below, pages 218–20, for *phonesthemes.*

storehouse of items, categories, and connections is the *competence* that we identified earlier.

The links by which we pull an item from the store are as various as links can imaginably be. There are loose ones that tie whole segments to other whole segments, such as the parental clichés that the humorist George Carlin makes the most of:

> Get down from there—***you wanna break your neck?***
>
> Be careful with that thing—***you wanna put somebody's eye out?***
>
> Put that coat back on—***you wanna catch pneumonia?***

And there are remembered associations from outside language—our thinking apparatus will throw a line to anything to rescue a thought. Suppose you run across the term ***polymath,*** find that it means a person of wide learning, and want to recapture a synonym you remember having heard. The first thing that comes to mind is the word ***polygraph.*** Next is the mental image of a ***pantograph,*** but it takes a moment for the word itself to emerge. Now you have it: ***pansophist.*** Here we see several connections within language, in addition to the one on the outside, which is the mental picture of the instrument. It is only when an interruption occurs—when for some reason we fail to get what we want—that we see the process in slow motion. Normally the desired item presents itself with no evidence of the circuitry by which we got it.

The types of vertical association usually cited as examples are those that show highly systematic resemblances in form and meaning. The familiar ones are the lists that we learn to recite as children: numerals, days of the week, months of the year, the principal parts of a verb, the degrees of an adjective (***good, better, best***), the cases of a pronoun (***I, me, my***). Whether we ever recite them or not, our brain makes connections among related items so that they can be retrieved on demand. The number of vertical sets runs into the thousands, and the classes they represent may be small, tight, highly structured ones whose alternation follows some fairly strict grammatical rule, or loose and partially open semantic ones that may even cause speakers to hesitate at times in making a selection. An example of the former is the set of possessives that are used as nouns, which fill the slots in ***I had mine, You had _____, We had _____,*** and ***They had _____.*** An example of the latter is the set of "coins" versus the set of "values." We choose from the first when we fill the slot in a sentence like ***A _____ won't go in that parking meter (penny, nickel, dime, quarter).*** We choose from the second in transactions where particular coins don't matter, as in ***It cost _____ (eight cents, two bits, a dollar seventy-five)***—though if we feel like it we can often pick from the first set ***(It cost a dollar and a quarter = It cost a dollar and twenty-five cents),*** provided the result is not too complex ***(*It cost a dollar and a quarter and two pennies).***[16]

The horizontal dimension of language is called *syntagmatic,* the vertical dimension, *paradigmatic.* The first is the domain of *syntax,* which is literally a "putting together," and the term *syntagm* is sometimes used to mean any unit or coherent group of units along the horizontal line, such as a word, a phrase, or a clause. A *paradigm* is any of the vertical sets that we have just discussed, but the term is used most often to refer to the sets that are tied together by some grammatical rule, such as pronouns with their cases, or verbs with their inflections for number, tense, and person.

LANGUAGES ARE SIMILARLY STRUCTURED

Languages can be related in three ways: genetically, culturally, and typologically. A genetic relationship is one between mother and daughter or between two sisters or two cousins: there is a common ancestor somewhere in the family line. A cultural relationship arises from contacts in the real world at a given time; enough speakers command a second language to adopt some of its features, most often just terms of cultural artifacts but sometimes other features as well (the borrowed words may contain unaccustomed sounds, which are then domesticated in the new language if conditions are favorable). A typological relationship is one of resemblances regardless of where they came from. English is related genetically to Dutch through the common ancestry of Germanic and Indo-European. It is related culturally to North American Indian languages, from which it has taken many place names. And it is related typologically to Chinese, which it resembles more than it resembles its own cousin Latin in the comparative lack of inflections on words. Rumanian is related genetically and typologically to the other Romance languages through the common ancestry of Vulgar Latin. It is related culturally and to some extent typologically to the other Balkan languages, especially the Slavonic ones, which have hemmed it in for centuries, cutting it off from the rest of the Latin world.

Though genetic and cultural relationships tend to spell typological ones, it often happens that languages of the same family diverge so radically in the course of time that only the most careful analysis will demonstrate their kinship. The opposite happens too: languages unrelated genetically may "converge" to a high degree of similarity. Typological

[16] An asterisk before a sentence indicates that the sentence is not acceptable.

resemblance is what we look to for the traits that are universal to all humankind. If we find that languages in scattered parts of the world, which could hardly be related historically, use the pitch of the voice to distinguish questions from statements, or show a predilection for certain vowel sounds over others, or manifest without exception a class of thing-words that may be called nouns, we can be fairly sure that this somehow reflects the physical and mental equipment that all speakers are born with, regardless of their linguistic heritage.

Typological similarities can be found at all levels; the degree and number of them make it possible to classify languages by types. We can match them in terms of the numbers and kinds of distinctive sounds that they have, the way they build words, and the way they arrange sentences. The second of these three methods was long the favorite; languages have been classified as *analytic* (modifications of meaning expressed by separate words: compare English ***I will go*** with French ***j'irai***); *synthetic* (modifications built in: compare English ***went*** or ***departed*** with ***did go*** or ***did depart***); and *polysynthetic* (extremely complex internal structure, roughly as in English ***antidisestablishmentarianism*** or Nahuat ***čika·wka·tahto·htinemi*** 'talk forcefully while walking').[17] Cutting across these categories are others depicting how modifications of meaning are handled: *isolating* (arrangement alone distinguishes relationships, as in English ***Show me Tom*** versus ***Show Tom me***); *agglutinative* (relationships are shown by attaching elements that nevertheless retain a clear identity, as in ***greenish***); *fusional* (elements are attached that virtually lose their identity in the process, as in ***dearth*** from ***dear*** + ***-th***); and *modulating* (internal changes are made without the addition of anything easily seen as having an identity of its own, as in ***steal, stole***). It is significant that examples of all these types of structure can be found in English. They are useful as statistical generalizations: most languages are typically more one than another—for example, Chinese is isolating and analytic, Latin fusional and synthetic—but all are mixtures to some extent.[18]

More recently, interest has shifted to sentence structure, in particular the sequence of subject, verb, and object in simple declarative sentences. Languages are classed as SVO, SOV, or VSO.[19] These arrangements are somehow basic, as it turns out that other facts of structure can be predicted from them. For example, taking V and O as the most essential elements, it generally happens that a qualifier will use whichever one of these two elements it qualifies as a fulcrum and will occur on the side opposite the other element. A negative, for example, which primarily modifies the verb will occur opposite the object, so that V is between: NegVO or OVNeg. An adjective uses the noun (the object) as a fulcrum, resulting in the order AdjOV or VOAdj.[20]

These are some of the large-scale generalizations that can be made about similarities in structure. There are small-scale ones as well. For example, it is predictable that even if a language has a linking verb, young children will not use it; they will say ***Daddy here,*** not ***Daddy is here.*** But Latvian children are an exception. It turns out that in Latvian the common way of saying ***yes*** is the verb for ***is*** (compare the English ***"Is it raining?"—"It is"***), and 'yes' is something that children learn very early.[21]

LANGUAGE IS HEARD AS WELL AS SPOKEN

Though every speaker is also a hearer, the psychology of one role is not always the same as that of the other. The principle of least effort decrees that speakers will work no harder than they have to in order to make themselves understood. This form of laziness results in the blurring of sounds. But the same principle decrees that listeners will work no harder than they have to in order to understand. And this form of laziness compels speakers to use care if they expect cooperation and if they do not want to have to repeat themselves. These are the radical and the conservative forces in language, which account for change and for resistance to change. As they are never quite evenly balanced at any one time, changes do occur, but then the conservative force steps in and reestablishes a norm.

The two roles are responsible for different approaches to language, which has created no small amount of misunderstanding. Phonetics, for example, is described almost completely in speakers' terms—the criteria for measurement are the physiology of the speech organs and the characteristics of the sound wave—though receiving the sounds and analyzing them is as much a problem as producing them. On the other hand, meaning is most often described from the hearer's standpoint; analysts work hard to find out how we decode messages, even though coding them is every bit as delicate an operation. In part the clash of approaches is due to what we can lay hold of to study. The speech organs can be

[17] This example is from Key 1960, p. 138. Typically the elements are deformed when they are packed together; Firth 1966, p. 83, cites English examples like ***I-sht-f-thought-ikkoombidone.*** Word spacing in English writing makes things appear more agglutinative (see below in text) than they are.

[18] For these classifications see especially Sapir 1921, Ch. 6.

[19] The orders VOS, OVS, and OSV do occur, but generally for special purposes, as in ***The corn we ate but the beans we threw away,*** where the objects have replaced the subjects as the topic.

[20] Lehmann 1973.

[21] Ferguson 1971, pp. 4–5.

observed; the ear and the brain cannot. We can see and hear what listeners do in putting meaning to a sentence that has already been coded and delivered; it is almost impossible to start with meanings and observe the process of selection and accommodation that the brain engages in to build a sentence. As our methods improve, we may hope that this one-sidedness will disappear.

As an example of speaker's economy versus hearer's economy, take the expression ***It was a nice day we had yesterday.*** The speaker draws this directly from storage—it is prefabricated and does not have to be built up from word to sentence. But the hearer begins processing before everything is said. There is no way of knowing whether the words about to be spoken will turn out to be a cliché or a freshly constructed and original sentence. It may therefore be necessary to assume the latter and process accordingly, until the signs that it is a cliché become unmistakable.[22]

[22] For T (transmitter) versus R (receiver) roles see Shubin 1969.

ADDITIONAL REMARKS AND APPLICATIONS

1. Name three countries in which at least three mutually unintelligible languages are spoken. (The USSR is publishing in more than seventy non-Slavic languages, in addition to Slavic.)

2. Since a page of writing requires a living reader to interpret it, can a dead language be said to live on in its written records, or has the reader somehow managed to revive it in himself? Is understanding even the writings of one's own language a matter of activating its symbols, say by a form of inner speech?

3. Can the sense of touch be used for communicating in language? Consider the reading of Braille. Can the temperature sense be so used? If not, why?

4. What type of gesture is a handshake? Could one male be sure, if he held out his hand to a male member of some unknown culture, that the other male would not take it as a challenge to a wrestling match?

5. Would you say that the gesture of tilting the head slightly to one side and looking at your interlocutor out of the corner of your eye is appropriate or inappropriate to saying the following words with the intonation shown?

Don't push him too far.

6. Is the supposed "cooperation" between language and gesture sometimes contrapuntal, in that one says one thing and the other says the opposite? Think of some examples.

7. A gesture may imitate an actual event. In kissing, for example, we have the real thing; then the perfunctory kiss; then the kiss in the air, which may be "tossed." Think of another example.

8. If we think of families of words related in meaning as being less arbitrary if the relationship shows somehow in the word form, how

do the two families ***inch, foot, yard, rod, mile*** and ***millimeter, centimeter, meter, kilometer*** compare? List two other opposing series like these (say, the popular versus the scientific names for a family of plants).

9. Does length have analog significance in English? Experiment with ***long*** in ***It's a long road,*** with ***way*** in ***They went way out to California,*** and with the syllable ***de-*** in ***It's delicious.*** Comment on ***I won't, I won't, I won't!*** Is some kind of "length" involved here too?

10. A story by Robert Louis Stevenson contains the sentence ***As the night fell, the wind rose.*** Could this be expressed ***As the wind rose, the night fell?*** If not, why? Does this indicate a degree of non-arbitrariness about word order?

11. Take the two sentences ***The man ate the food*** and ***The man digested the food*** and combine them in a single sentence starting with ***The man who.*** There are two possible answers. Are they equally plausible?

12. Consider the two headlines ***Woman Running Across Street Killed*** and ***Woman Killed Running Across Street.*** Does syntax tend to be non-arbitrary in terms of putting together things that belong together?

13. What is the member of the "value" paradigm in the British system that corresponds to ***pennies*** in the American "coin" paradigm?

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