Anthropological Limits of Language

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If one of the mounds of Indiana were to yield a chamber containing elaborate effigies, skeletons oriented in a certain way in burial, semi-precious stones, metals, an altar and other physical remains, the story which such remains had to tell about the culture and the physical type of its inhabitants might be controversial, but no interested scientist would feel that he was without a right to an opinion, to an interpretation. And this feeling of freedom in wandering into a new and complicated realm of data is healthy and entirely justifiable. But, if in the same Indiana mound a tablet were found inscribed with anything more conventional than simple pictures, the possibility of deciphering a language by their own efforts would never occur to interested scientists; if suggested, a likely response would be that the matter is too complicated for the non-specialist. Now this feeling of tabu in respect to linguistic analysis is not healthful, and is based on a confusion of the psychological and anthropological limits of language.

The former are truly formidable, the latter not. One could not delimit in a few hundred words the psychological boundaries of language, because all the problems of learning, thinking, symbolism, and epistomology are involved; on the other hand, it is possible to delimit briefly the anthropological boundaries of language.

Before doing this, it will be well to point out that incomparably fewer factors, and these more clear-cut, are involved in language than in culture. One thinks of grammar as involved and unattractive because one is educated in a tradition (a matter of culture, note) in which every child is required to memorize certain arbitrary "rules" of Latin grammar, and once learned, every "rule" is found to have, as a sort of unpleasant anticlimax, a number of exceptions. This schoolboy Latin assumes the proportions of a deception when it is realized that the thing so painfully studied was never spoken naturally by men and women but was a more or less artificial construction used by pompous Ciceronean rascals.

However pompous, Cicero had a few fundamental choices to make if he wanted to produce any sounds at all. He was doubtless in the habit of sucking air into his oratorical lungs, and after his blood was oxygenated, breathing the air out again. Now sounds can be made just as well while the air is going in,—inspiratory sounds,—as when the air is going out,—expiratory sounds. We think of expiratory sounds as natural for speech because we use them, and even if we hear dozens of different languages spoken we may never hear an inspiratory sound in speech proper. Of course, anyone is apt to draw in his breath sharply in some emotional situation, and in English the exclamation for encouraging a horse is an in-drawn sound. But for their main business most languages get along with expiratory sounds alone and even when the air which sets up the sound vibrations does not come from as deep down as the lungs (e.g., in making the p, t, k sounds), the air puffs outwards from the mouth. Yet inspiratory sounds are also employed

for the main business of languages in a few parts of the world. The
Maidu of California have an implosive *b* and *d*; that is, the air does not
puff out of the mouth but is sucked in for these sounds, and, in addition,
the vowel *e* is commonly made in Maidu while the air is being drawn
into the lungs. The Ges languages of South America have an implosive
g. Languages spoken in a large area in southern Africa have what is
commonly called clicks which are inspiratory sounds, sometimes suggest-
ing the crack of a rifle, when a powerful Zulu, for example, sucks his
muscular tongue back over the roof of his mouth until the air snaps in.

Now, whether our linguistic hero chooses to use inspiratory sounds
or expiratory sounds, there must be something more involved than the
air going in and out of the lungs, for this can be done without any
sound at all. The next few choices our hero makes determines how
these sounds will be made.

If the speaker is a male, a cartilaginous protuberance sometimes
called the Adam's apple may be seen in the front of the throat. This,
and the less conspicuous thyroid cartilage of the female speaker, locates
approximately the position of the voice-box, which is essentially a reed
instrument consisting of two parallel muscles, vocal chords, which may
vibrate (making voiced sounds) when the air to or from the lungs passes
over them, just as the single reed of a saxophone vibrates when a
player blows on the mouth piece. But the two muscles in the voice-box
have more possibilities of rest and motion than the reed of a saxophone;
and, what is more important, perfectly good speech sounds (voiceless)
can be made without any motion whatever of these vocal chords, in
contrast to the sounds emitting from a saxophone, which are wholly
dependent on the vibrations of the reed. The opening between the two
muscles is called the glottis. When the glottis is completely open, a
considerable breath of air may be forced up from the lungs without
causing any movement of the vocal chords, and we can produce, for
example, *h* as in "help", *s* as in "sip", or *f* as in "fix". When the glottis
is partially open, open at one end, we may speak without voicing, i.e., by
whispering. And when the glottis is tightly closed, we may still make
voiceless sounds, like *p*, *t*, *k*, which take advantage of the air in the
mouth above the closed glottis. But for voiced sounds the glottis must
be open to allow the air to pass through, and the vocal chords must be
allowed to vibrate. Then instead of making voiceless *s* (sip), we make
voiced *z* (zip); instead of voiceless *f* (fix), voiced *v* (vicks); instead
of voiceless *p*, *t*, *k*, voiced *b*, *d*, *g*; instead of whispering we talk out
loud. Some languages, like Iroquois, which used to be spoken in Indiana,
have mostly voiced sounds; most languages, like Miami, also spoken
in Indiana, are about evenly balanced between voiced and voiceless
sounds; no language uses either voiced or voiceless sounds exclusively.
Irrespective of the choice which any particular language may make,
all types of speech sounds, except one, can be made both in a voiced
and voiceless form. Thus, in English, *m* is always voiced, but in Shawnee
it is also voiceless, sounding as though the speaker were clearing his
nose of a little irritation (mtekwi, "tree"). The one exceptional type
is made when complete closure of the glottis is the definitive character-
istic; the vocal chords cannot then vibrate, and the resulting sound is,

accordingly, always voiceless. When the Danish word "hus" is spoken, a consonant is heard between the *u* and the *s*. This is known as a glottal stop and is made by a sudden closure of the glottis which is after a split second opened again so that air may pass through to produce the final *s*. Menominee, Shawnee, and other languages of the eastern woodlands also use this glottal stop for which there is no voiced form; it is always voiceless. For all other types of sounds a choice is offered between the voiced and voiceless forms, and, of course, many languages use both forms of a given sound.

The next fundamental choice is between making (1) an unimpeded sound with air going from or to the lungs, with the vocal chords vibrating or still, depending on which of the choices mentioned above were taken, or (2) an impeded sound. An unimpeded sound is called a vowel, an impeded sound a consonant. For a consonant the impediment may be a complete momentary interruption of the flow of air at one or two points. If the impediment is at the lips, the resulting consonant is *p*; if the tip of the tongue is placed behind the upper teeth, the consonant is *t*; if the back of the tongue is placed on the roof of the mouth to cause the impediment, the consonant *k* will result. In each instance the flow of air is stopped, and this class of consonant is therefore called a "stop" (a "glottalized stop" if the stoppage at the lips, teeth, or roof of mouth is removed simultaneously with the opening of the closed glottis; an "aspirated stop" if the stoppage is followed by a puff of air, i.e., aspiration; a "voiced stop" if the stoppage at points in the mouth is accompanied by continuous vibration of the vocal chords). If, despite the impediment, the flow of air continues, the resulting consonant is called a continuant. Thus, the lower lip may be placed against the upper teeth to impede the flow of air without completely stopping it in making *f* (voiceless) and *v* (voiced), as in the word "five". In making vowels, the tongue is moved about in the mouth, high and low, front and back, changing the size and shape of the resonance chamber and therefore the quality of the vowel; but the tongue never gets close enough to the teeth or to the roof of the mouth to impede air flow. Some languages in the Philippine Islands have only three vowels; most Algonkin languages have four different vowels; Uto-Aztecan languages usually distinguish between six vowels; Swedish has twenty-one vowels, and a still greater number is found in the Sudan region of Africa. A comparable range in numbers of consonants is found between different languages. Polynesian words, like Italian words, sound as though they were chiefly made up of vowels; in Wishram, a language spoken on the Columbia River of Oregon, it is possible to find extremely long words composed entirely of consonants. While consonantic variety in single languages commonly exceeds vocalic variety in a proportion of four to one, no language has yet been reported entirely without vowels.

The last fundamental choice is to decide whether the air is to go out of the nose or out of (or in, if desired) the mouth. Naturally, if the latter is chosen, the mouth has to be open, but for nasal sounds, the nose does not need to be entirely open. Indeed, a slightly stuffed nose improves nasal sounds. The important thing is to get the air into the nasal chamber, and to do this the uvula, that musclar pendant of the

velum hanging from the back of the roof of the mouth, must be down and relaxed. If this musculature is contracted backwards and upwards, the passage to the nasal cavity is cut off, and the resulting sounds are oral. In some languages like English, it does not matter whether vowels are produced orally or nasally. In Iroquois and Siouan and many other Indian languages, it makes as much difference as in French; to confuse nasal with oral vowels is like confusing a high vowel, like *i*, with a low vowel, like *a*, in English (to say "slip" when you mean "slap"). Nasal consonants, like *m* and *n*, are never made with an indrawn breath for purposes of speech. This is surprising since one variety of snoring is essentially an inspiratory nasal consonant, of the continuant sub-class, usually alternating with a moan-like expiratory *m*. The latter (the expiratory *m*) is used by languages all over the world even when other nasal consonants are lacking; the former (the inspiratory *m*), just as easy to produce as its use in snoring shows, has never been reported in actual use for any language. This is one of many instances showing that languages of the world are curiously limited in their variety. The mere production of sounds offers many possibilities which no language has exploited. Rather, certain paths of preference have become well worn. These have been indicated.

From these paths, it would seem, every language chooses its dozen or score or more of sounds, technically known as *phonemes*. Having chosen its phonemes, a language does not use them in isolation but strings them together in certain characteristic units, such as a sentence, or (so far as the speaker is concerned) the minimum unit of isolable meaning, the word. But the linguist spends most of his time with fractions of the word, the stem, which is the kernel of the word (some words like some nuts have more than one kernel), and affixes, the appendages of the stem, one or many little tags placed fore or aft of the stem (prefixes or suffixes) or right in the middle (infixes), breaking the stem apart, as it were. Altogether, a half dozen linguistic units are commonly isolated: (1) the basic sounds known as phonemes, (2) syllables which are in the phonetic sphere more or less what words are in the semantic sphere, a minimum unit for the native speaker, (3) stems, (4) affixes, (5) words, (6) sentences. It is these units which the linguist picks out to describe from the rumble of speech.

But, strictly speaking, speech never rumbles along. It goes along with a rhythm and in music. Technically, this is a matter of accent, and in some languages like English the rhythm, that is, the stress accent, is the most important thing, while in other languages the music, that is, the pitch accent, is the most important thing. The stress or pitch is associated primarily with the phoneme in some languages, and with the syllable, stem, affix, word or sentence in others. In Yuki, a California Indian language, the affix, as a unit, bears a distinctive tone. In Navaho the primary syllables hold the tone of the word while the tones of other syllables are accommodated to that of the primary. In most complicated tone languages, like the African Ibo and Efik, pitch is an inseparable part of the vowel phonemes. In English we have sentence tone as well as word stress. Thus, in asking a question in which every word may be stressed, the last word is spoken in a higher pitch.

Think of the six units of speech mentioned (phonemes, syllables, stems, affixes, words, sentences) as boxes of different shapes and sizes, and then consider the limited possibilities which are offered in manipulating these boxes for grammatical purposes.

1. If they are strung along in a single line, we may say metaphorically that a pitch accent raises a certain box above the line, while a stress accent depresses another box.

2. In compounding we take two or more of the stem-boxes, each of which has a kernel of meaning (as "to come" plus "to sing" which occurs in Shawnee), and we nail the two boxes together (with the meaning in Shawnee, "He comes here to sing", expressed in one word).

3. In affixation, we take little boxes, often a series of them, and tack them (a) exclusively after the stem-box in languages like Eskimo and Tübatulabal (suffixation without prefixation), or (b) we tack them on the front of the stem boxes,—this possibility is limited to the Khmer of southeastern Asia, and even here is accompanied by infixation (prefixation without suffixation), or (c) we tack them on the back as well as on the front of the stem-box (prefixation and suffixation). Many languages of the world tolerate this, but in most of these, as in English, the prefixes (as re- in "reëxamine") may be dispensed with and the word minus the meaning contributed by the prefix may still be used in any sentence in which the word with prefix was used; suffixes (as -s in "thinks") are obligatory if the word is to be used in certain sentences (in this instance, in sentences with singular actor). Yet for languages of the Bantu family in Africa and the Athabascan family of America the reverse is true: the suffixes tend to be dispensable, the prefixes obligatory. A final possibility in affixation occurs (d) when we must first saw the stem-box in half and then tack the two halves on each side of the little infix-box. A widely scattered number of languages permit this, including Yana, Chinook, and some members of the Siouan and Athabascan families; our own ancestral Indo-European made use of an infixed nasal which is reflected in English "stand" as contrasted with "stood".

4. Almost every one of even very small linguistic unit boxes is a mosaic of still smaller phoneme-boxes. Very rarely is this mosaic disturbed, but in a few languages like Lutuami of Oregon the phonemes of some unit-boxes may be transposed, the first coming last and the last first (metathesis).

5. Now we are ready for a bit of trick manipulation: we have a stem-box bearing the meaning "to go" and we want to express the meaning "to go along continuously"; so we take out of our store house another identical stem-box and hitch it on the first (reduplication) and find that "to go" plus "to go" means "to go along continuously" in some languages. Reduplication, like other manipulations of linguistic units, may, of course, express a wide variety of ideas. The Salish of Washington and British Columbia and the Polynesian languages of the Pacific Islands are especially fond of reduplication, which is by no means confined to the stem-boxes.

6. To appreciate the second trick manipulation, think of the boxes as having their shape determined by consonants and their color by

vowels. Now it is possible to take a word-box like English "sing" and paint it different colors, having as a result words like "song" and "sung" in which the vowels are changed (ablauted) but the consonants unchanged. It is just as possible to have consonantic ablaut as the vocalic ablaut illustrated for English. Hamitic languages of north Africa and Semitic languages, like Hebrew and Arabic, and the Penutian languages of California, are given to ablaut changes even more than English.

7. The order of the word-boxes is of no importance at all in languages like Latin or Tübatulabal where little affix-boxes are tacked on the stems to indicate what the relationship is between words. But in languages like English or Chinese, which lack the relational tags, the word-box carrying the actor must precede the word-box telling what the actor did ("women wash on Mondays"), but even in such languages freedom in the order of word-boxes is possible ("on Mondays" may precede "women wash").

Every language of the world manipulates its boxes, its linguistic units, within the narrow range indicated. These different ways of manipulating units are called grammatical processes. As a result of these manipulations, certain meanings are expressed which are known as grammatical categories. The extent of grammatical categories is no greater than that of grammatical processes. There is not so much agreement of terminology here, however, and there is a constant temptation to leave the strictly grammatical field and wander off into psychological fog or logical vapors because meaning is involved. Yet grammatical notions, strictly speaking, are pretty well confined to categories suggested by less than ten technical terms. Some of these categories refer primarily to events (verbs), some to things (nouns).

Gender is a classification of things according to some criterion. This happens to be sex (masculine, feminine, and sometimes neuter) in languages we are familiar with as German, Latin, and those of the Semitic group, but outside of this group of languages in the Old World the expression of sex gender is very rare, it is found in only a few isolated American Indian languages (Chinook, Tunica). All the languages of the Algonkin family, and some others, make a distinction between a thing which is alive or mobile (animate) and a thing which is dead or static (inanimate); the gender classification of the African Bantu languages is based on size or shape or texture and, with such criteria, as many as eighteen genders may be isolated.

Case categories are of two types. In one relationships are indicated. Thus the relationship of the nominative case to the event is that of actor, while a thing in the accusative undergoes the event. The second type includes the various locative cases which indicate the position of the thing in reference to the event (in, on, under, above, toward, away from). Finnish is famous for the number of its locative cases; many Indian languages elaborate locative distinctions beyond the wildest dream of a Finn.

The simple distinction between a singular and plural of English is more exceptional than common. Most languages of the world have a dual, as though we had in English in addition to the forms "tree"

(singular) and "trees" (plural) the possibility of yet another form which I shall invent, "treeses" (exactly two trees). Melanesian languages have a trialis, expressing exactly three things. A paucitive, indicating a few, and a collective, indicating a bunch of units, are met with in many languages.

We think ordinarily of three persons, the first person, or person speaking, the second person, or person addressed (you), the third person, or person spoken about; and we know that each of these persons may be mentioned in the singular or plural or other numbers if the language expresses other numbers. But the expression of person can be still further elaborated. Navaho has a fourth person, the less important of two persons spoken about, and the Algonkin obviative is a type of fourth person. Perhaps there is some correlation between languages which have dual number and those which distinguish between a first person inclusive (we, i.e., you and I, including the person addressed) and exclusive (we, i.e., he and I, excluding the person addressed). Demonstrative notions, nearness and farness, visible and invisible, are often associated with the expression of person, most elaborately perhaps in Southern Paiute.

Tense is familiar to us, ordinarily specified for each event, and in written English sometimes elaborated so that one toys with the past of an event to occur in the future (as was said at Gettysburg, "that we here highly resolve that these dead shall not have died in vain"); but for most American Indian languages tense is left to context. Grammatically speaking, the Indians do not worry about time.

While tense is concerned with the relative time of the action, aspect defines the various manners in which the action may be carried out. Thus one may think of bathing as requiring but a moment (momentaneous aspect, "I took a bath"), or as continuing for some time (durative aspect, "I was bathing"). Most Indian languages would not care to say exactly when a deer was grazing on the mountain side; but great interest would be attached to the differences expressed by the terms iterative, inceptive, cessative, distributive which are self-explanatory. Russian has some expression of aspect, but not nearly as many aspectual distinctions are made in any Old World language as in Nootka, spoken on Vancouver Island.

Mode indicates the attitude of the actor or speaker in respect to the event. Thus, I may be in favor of a bath (desiderative, "I want to bathe"), or in phantasy thinking of the comforts of a bath (optative, "Would I were bathing"), or merely toying with the notion (potential, "I could bathe"; dubitative, "I might bathe"), or I might grant your request to bathe (permissive, "You may bathe"), or I might order you to bathe (imperative, "Bathe!"), or merely urge you to bathe (mild imperative, "Do bathe"), or make a general suggestion including myself in the request (exhortative, "Let's bathe"), or I might inquire whether you had bathed (interrogative mode), or my attitude might be definitely that you had not bathed (negative mode). In syntactic mode, the attitude in one phrase of the sentence depends on how events go in another phrase or "clause" of the sentence (for example, conditional mode, "You may put on your new suit if you take a bath"). Algonkin

languages are particularily rich in syntactic mode. American Indian languages are not, on the whole, rich in syntactic mode, but for other grammatical expressions of mode one finds it necessary again and again to translate single Indian words into long English sentences explaining the attitude of the speaker or actor to the event.

Case, as was mentioned above, is a category associated with "thing"; voice is a category associated with event, with verbs; both categories are concerned with relationships. The intransitive voice has a "thing" for actor but no "thing" in the predication as the undergoer of the event ("The man fell down." If "on the ground" is added, the voice is still intransitive, for "the ground" is mentioned as the location of falling rather than being the undergoer of the fall). For transitive verbs, the predication includes a "thing" which undergoes the event ("The man touched the ground"). For passive verbs the undergoer of the transitive is prominently specified and in most languages the actual actor is not mentioned ("The ground is being touched"), but in Algonkin languages the agency of the event is also mentioned ("The ground is being touched by the man"). Other expressions of voice include the mediopassive, indicating that the event is done for the actor (a well-known voice because it occurs freely in Greek literature), a polarity of active and static ("He runs", as contrasted with "He thinks"), an impersonal ("There is singing"), the reflexive ("He touched himself"), the reciprocal ("We touched each other"), the benefactive ("He sang for him"), the causative ("He made him sing").

We may pause here and note that, for grammatical categories no less than for the manipulation of linguistic units (than for the number of these units, than for the fundamental choices of sounds), the range of actual usage for all languages of the world combined never approaches its logical possibilities. For example, we found that in the expression of number some languages made grammatical use of the dual, some of the trialis in addition to the singular and plural with which we are all familiar; but no language has a grammatical means of expressing exactly four things or persons. Since the ceremonial number of so many tribes is four, and it is therefore constantly necessary to say (with an additional word) that four men went, or that they did so and so four times, a compact grammatical expression of this number would be obviously useful. It does not exist. What linguistic variety does exist in languages of the world is to be found within the areas circumscribed above in phonemes, units, manipulation of units, and meanings expressed by this manipulation.

Since linguistic diversity is limited to such a circumscribed sphere, it offers in point of fact less to alarm the non-specialist than the sphere of culture which is much wider and much more difficult to circumscribe. An interested non-specialist who is bold enough to make an interpretation concerning the cultural material which an archeological find reveals has therefore no need to fear the fewer factors and the smaller field of operation implicit in analyzing the linguistic material from the same archeological source.