On the Sound Shape of Language

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1. It has been recognized, at least since the time of the medieval doctrine de modis significandi, (modes of signifying) that language has double articulation (articulatio prima et secunda). Briefly, this means that language has two types of signs, one of which is purely differential or 'distinctive', and the other of which is directly significative and meaningful. In the case of the first type of sign (e.g., distinctive features - also phonemes, syllables), the signified of the sign has simple 'mere otherness'. In the case of the second type, (e.g., word - also morphemes, phrases, clauses, etc.), the signified has what Sapir called [[1925] 1949:34] "singleness of reference"; it conveys a specific unit of information. The distinctive features (the smallest signs of the first type) are significative only in the sense that they differentiate words of unlike meaning, that they carry (mere) otherness: they are sense-discriminative, not sense-determinative. (See Jakobson, Fant & Halle; Jakobson & Halle; Jakobson 1968; and Jakobson & Waugh.) In fact, the attribute 'distinctive' in the term, 'distinctive feature' means the sense-discriminative properties of sound: those properties which are capable of differentiating between words of different meaning. The 'distinctive features' then are those attributes of sound which signal that a given word in which they occur is, with a probability of near-to-one, different from any other word in the language endowed with a different property. Thus, in English, given distinctive features can differentiate shows from showed (continuancy), zeal from deal (continuancy), mad from bad (nasality), tailor from sailor (continuancy), mobility from nobility (gravity), fashion from passion (continuancy), in the following: "It shows the strange zeal
"It showed the strange deal

of the mad sailor with neither nobility nor fashion."
of the bad tailor with neither mobility nor passion."

The proviso "with a probability near-to-one" was added because of the possibility of homonymy (e.g. pair and pear in English) in a given linguistic system. Homonymy limits the sense-discriminative capacity of the features to a probability near to one, but does not cancel this vital function. There exists also the possibility of doublets, e.g. in English either (/i/) vs. either (/ay/) or Russian škap vs. škaf 'cupboard'. And yet, because of the sense-discriminative use of the features, there is a tendency for the doublets to be interpreted as evidencing some difference in meaning. In English, therefore, the difference between either (/i/) and either (/ay/) generally denotes a difference in style of speech or in social background (either) with /ay/ is felt to be more prestigious. This can be seen in the song by Ira and George Gershwin: "you say eether and I say eyether, You say neether and I say nyther...".) In Russian, on the other hand the use of word-final /f/ on a noun (škaf) signals that the word is still felt as a foreignism.

It is on the basis of the sense-discriminative capacity of the features that neutralization takes place in certain environments, for neutralization is nothing more than the suspension in a given environment of this sense-discriminative capacity -- it is the loss of the ability of the sense-discriminative features to be sense-discriminative, hence the loss of the feature. In Russian, for example, in the word-final, the voiced~voiceless opposition in obstruent consonants is neutralized and an "incomplete" phoneme (see Jakobson & Waugh 1979) results. That these incomlete phonemes have no distinctive voicelessness is evidenced by the fact that there are no words in Russian which may be differentitated solely by the presence or absence of voice (e.g. [p] vs. [b]) in the word-final. The implementation of these incomplete phonemes by the voiceless member of the lost opposition is due to the unmarkedness of voicelessness as against voicing.

It is well known, that while distinctive features signal that two words are different in meaning, they do not signal what the meaning difference is: distinctive features do not (at least in their primary usage) signal meanings, if by 'meaning' we denote 'information more specific than otherness'. And it is in this sense and in this sense only, that the distinctive feature is 'meaningless' but the word is 'meaningful': according to the type of signified which each sign has, not the fact of having one. All linguistic signs, from discourse to the distinctive features, have a signified; they only differ as to the type of signified. Distinctive features, then, signal only 'mere otherness': in that sense they have no singleness or reference and carry no unit of specific information; words on the other hand have a singleness of reference and do carry a unit of specific information.

Since all the distinctive features have 'mere otherness' in their signifieds, it follows then that for them, the structure, the system of relations based on oppositional equivalences and differences, is found only in the signifier, not in the signified (cf. Jakobson 1972:78). The signified remains undifferentiated, being merely differential, while the signifier is differentiated according to binary, oppositional, hierarchical laws of patterning. The distinctive features, then, reflect that area of language where the oppositional structure inheres in the signifier and where the signified gives only 'differentiatedness'. On the other hand, morphemes, lexical items, phraseology, word order, etc. all are part of that area where the structure inheres in the signified, according to binary, oppositional, hierarchical laws of patterning, and where that structure is coordinated with formal properties as well.

Since the distinctive features are only sense-discrimination, they have an <u>indirect</u>, a <u>mediated</u> relation to meaning: it is only through their use as the signifier of another sign (e.g., a word) that they may be associated with meaning, while the word itself has a <u>direct</u>, an immediate relation to meaning. Thus, signs with a directly significative signified, are made up, in their signifier, of signs which themselves do not carry meaning. This creates a dialectic tension, an inherent asymmetry, a sharp discontinuity between the signifier and the signified or any grammatico-semantic sign, a tension which is resolved by the unity of the sign, on the one hand, but on the other hand allows for the formation of a large vocabulary. We have in a very real sense, 'tools to make tools': the

general attribute of human beings which is valid for language structure as well.

This is not to say, however, that the distinctive features are merely the smaller units out of which the larger units are built. Clearly, there is no comparison of size to be made between distinctive features and grammatico-semantic features. In addition, in viewing the whole/part relationship which holds for linguistic signs in general, we see that, for the most part, wholes (e.g., words), in which structure inheres in the signified are made up of smaller parts (e.g., morphemes), which themselves are also directly meaningful. There is, for these two, no disparity between the whole and its parts. It is only when one goes from the morpheme to the phoneme or the distinctive feature that the discontinuity, the 'sudden jump', occurs. Thus, in the whole/part hierarchy of signs the 'descent' from morpheme to phoneme is not just (or not even) a descent from bigger to smaller, but from one type to another. In fact, it would be better to say that we are dealing here with two hierarchies: (1) discourse/utterance/sentence/clause/phrase/word/morpheme/conceptual feature, including all those signs which are directly meaningful; and (2) syllable/phoneme/distinctive feature, including all those signs which are only differential. Furthermore, the first hierarchy is basically in a whole/part relationship with the second, although some of the signs in the second hierarchy (e.g., phoneme) may be 'larger than' some signs in the first (e.g., morpheme), morphemes being potentially identifiable with a single distinctive feature or a combination of features (e.b., German <u>hatte</u>/<u>hätte</u>: past tense/subjunctive 2).

Moreover, these two hierarchies are correlated with the two major types of patterning in language: the 'sense-discriminative system', the area with signs like distinctive features, which have 'mere otherness', indirect signification, mediated relation to meaning, and oppositional structure in the signifier; and the 'grammatico-semantic system', the area with signs like words, which have 'singleness of reference', direct signification, immediate relation to meaning, and oppositional structure in the signified. This opposition of 'sense-discriminative system' vs. 'grammatico-semantic system', has, unfortunately, been widened metonymically to equate 'sense-discriminative system' with sound, or formal properties of signs, and 'grammatico-semantic system' with meaning in general or meaning properties of signs. Yet it is not at all the case that form (or sound) is always correlated with 'mere otherness', neither in language nor in other semiotic systems. While some formal structure may, in other systems, also evidence duality (e.g., the genetic code, cf. Jakobson & Waugh), it is equally obvious that many 'formal' structures (e.g., systems of clothing, kinship systems, food systems, etc.) do not evidence 'duality' in the strict sense meant here. In these latter cases, while differences of form can of course be discerned, they are also directly meaningful. Thus, their analog is not with the sense-discriminative system at all but rather the grammatico-semantic system. And if we turn to language structure itself, there also can be no straightforward equation of 'sound' (or properties of sound) with 'units with mere otherness', for many phonic properties are directly meaningful. This can be seen most clearly if we study such obviously meaningful elements as intonation contours (cf. Jurgen-Bunings & Van Schooneveld; Ladd), emphatic stress, phrasing and pausing, etc. But it holds also for properties which look at first glance like the distinctive

features and yet are quite different from them, not necessarily with regard to form but rather with regard to function.

2.1 In the last few years, it has become clear through research done from such varied points of view as language structure, discourse analysis, variation theory, child language acquisition, speech perception, dichotic experiments, electric tracings of the brain, temporary inactivation of one hemisphere of the brain, etc., that the speech sound as a whole is an artifact made for speech and invested with communicative import. In particular, it has been found that the speech sound is a multi-layered, hierarchized signal with a variety of components which are invested with a variety of functions, only one of which is 'mere otherness'. It is in this sense that the speech sound can be said to be multifunctional, for the phonic properties which make up the speech sound, while they coexist in the sound, nevertheless evidence a variety of functions. In particular, there exist redundant features, expressive (or stylistic) features, configurative (demarcative and culminative) features, and physiognomic features. (See Trubetzkoy [1939] 1969; Jakobson, Fant, & Halle 1952; Jakobson & Halle; Jakobson & Waugh 1979.) In addition, all of these, rather than having 'mere otherness', are directly significative in various ways.

Far from being ancillary or superfluous, the redundant features indexically (see Jakobson 1968) inform about the presence or absence of given distinctive features which are either simultaneous in the given bundle or adjacent in the given sequence (e.g., in English, nasality in the vowel informs about an adjacent nasal consonant: ĩn vs. ɪt, ɪd). In this sense, the redundant features are inherently different from the distinctive features because they do have "singleness of reference": they inform about specific distinctive features. And they do not have "mere otherness", because they are not used to differentiate directly two words or morphemes of otherwise identical form. Nor are they relatively autonomous in their patterning: rather, their patterning is dependent upon the patterning of the distinctive features. So, in the hierarchy of percepts contained in the sound, the distinctive features perform the primary function while the redundant features perform the secondary one. Of course, in some cases the redundant features may substitute for the distinctive features, but this is only in special modes of speech (especially in elliptic speech).

In like fashion, the configurative features (see in particular Trubetzkoy [1939] 1969) fulfill a directly meaningful role, since they show either the unity (culminative features) or the limits (demarcative features) of meaningful units such as morphemes, words, phrases, etc., which they occur in. They, like the redundant features, are indexical to given grammatico-semantic units. (It should be pointed out that the phonic properties which function as configurative features may also be used in a distinctive or redundant function in the same system.) It is in this sense that the word may exist as a 'phonological' phenomenon, given by specific properties in the sound. For example, in English, stress plays a culminative role in that it signals both the unity of the word and the number of words and word-groups in any given syntagm. In some languages, the device known as vowel harmony fills the similarly

culminative role of indicating the unity of the word. In Czech, stress plays a demarcative role, indicating the beginning of the word. Of course, it is also possible to have negative signals of word boundaries; in Russian, the presence of a voiced consonant is a (negative) signal that no word boundary is present after the consonant, because in word-final position neutralization of the voiced~voiceless opposition occurs. (For other examples of configurative features, see Trubetzkoy [1939] 1969, and Jakobson, Fant & Halle.)

Expressive (or stylistic) features indexically inform about, e.g., the placement of an item in a special subset of the vocabulary (loan words; exclamations) or the subjective attitude of the speaker (anger; despair; enthusiasm). There existed in 19th century French, for example, an affected manner of speech whereby many Parisian women pronounced [ə] and [a] almost as [œ] and [æ] (Passy 1989: 248). Special items of vocabulary such as interjections often use sounds and clusters of sounds which don't occur otherwise in the language: e.g., interjections spelled as tut, brr, phooey in English. (Cf. Bolinger 1963:122f) As Sapir pointed out ([1915] 1949:188), in certain North American Indian languages, "sometimes sounds are found in songs which do not otherwise occur in the language." Likewise, in Russian, the presence of a non-palatalized consonant before /e/ signals special vocabulary items such as loan words (e.g., /kafe/), acronyms (e.g., /nep/), or names of letters of the alphabet (e.g., /be/). In English, vowel length signals the subjective involvement of the speaker: it's so-o-o-o big! Likewise, in English, the aspirated release of a word-final tense stop (e.g., [tʰɔpʰ], [nɔtʰ], [bækʰ]) is a signal of a special style of speech (e.g., careful pronunciation, emphasis of various degress). In fact, at least six different emotive variants have been discerned by Fónagy (1976) for Hungarian sound sequences: anger, hate, sadness, joy, tenderness, irony.

The physiognomic features (identifiers) inform about and are overtly indexical to the age, sex, geographical and ethnic origin, social class, education, kinesthetic type, personality, etc., of the speaker. Here there are two major things to be discerned: what constituents in the speech sound carry these types of information for the addressee; and which of these are consciously or subliminally regulatable by the addresser. For example, many speakers are adept at using (or on the contrary not using) certain elements which communicate their geographic or ethnic origin (cf. Labov 1972). Likewise, the general pitch of the 'voice', the specific ways of articulation, etc., may indicate a male or female speaker.

These last two types of features -- the expressive and the physiognomic -- are not necessarily binary (whereas the distinctive, redundant, and configurative features are all binary) and hence evidence "gradience" (Bolinger 1961: see also Labov 1964, 1972).

The 'barrier' between each of these functions of phonic properties, while it may not be absolute, is certainly basic enough to create great difficulty when speakers try to change the properties from one function to another. Thus, in English, as mentioned above, nasality in the vowels is redundant, while in French it is sense-discriminative (e.g. [bõarjẽ] 'bon a rien', [rjẽnafɛr] 'rien a faire', [bonami] 'bon ami'). Anyone who has

tried to teach French to native speakers of English knows how difficult it is for English speakers to learn the sense-discriminative use of nasality. Likewise, in Russian, sharpness (palatalization) or /r'/ is distinctive, while in Norwegian it is configurative (demarcative, being word-final); Norwegians seem to be unaware of its presence at all and have great difficulty in discerning and especially in producing /r'/ as a sense-discriminative element.

2.2 The difference between these various functional phonemic properties has also been confirmed by recent research on the brain (see Kumura 1967, and Balonov & Deglin). In the first place, as many linguists had already surmised, speech is processed differently in the brain from all other auditory phenomena, whether produced by humans, by animals, or by other environmental factors (see Balonov & Deglin 77ff). Secondly, the left hemisphere (the dominant one) is particularly well suited for the perception of distinctive and redundant features (Balonov & Deglin; Zaidel 1978) while the right hemisphere is more suited for the perception of the emotive and physiognomic features and other significative phenomena like intonation (Blumstein & Cooper 1972, 1974).

The recognition of all auditory stimuli outside of language is supervised solely by the right hemisphere (Balonov & Deglin: 77ff). Its inactivation does not affect the distinctive features, but has a totally destructive effect on all other auditory stimuli: noises of humans and animals, of industry, of transport, and of natural forces, as well as musical tones, chords, and melodies (cf. Gordon 1970; Mindadze et. al. 1975), even in those cases when these auditory stimuli are quite familiar to the patient. Subjects with a temporarily inactiviated right hemisphere were helpless when faced with the following auditory stimuli, which were perfectly recognizable as long as this hemisphere remained active: the ringing of a clock, singing birds, splashing water, neighing horses, a howling snowstorm, a roaring lion, a crying child, the clatter of crockery, peals of thunder, a grunting pig, the clank of metal, the call of a rooster, snoring, a barking dog, a lowing cow, the sound of a furnace, footsteps, a cooing dove, the rumble of a plane, cackling geese, a ringing telephone, the thundering of waves at high tide, etc. (Balonov & Deglin: p. 77). During the inactivation of the right hemisphere, the noise of applause was taken for the winnowing of grain, laughter was taken for crying, thunder was taken for an engine, the squeal of a pig was taken for the noise of a caterpillar tractor, the honking of geese was taken for the croaking of frogs, a dog barking was taken for the cackling of hens, the noise of a motorcycle was taken for that of an animal, etc. (pp. 80 ff.) In addition, the inactivation of the right hemisphere renders the listener completely unable to recognize or even notice sentence intonations. The affective or emotive, intonations are (as one would have guessed) particularly likely to disappear, as are the emotive and physiognomic features. Thus, patients with a temporarily inactivated right hemisphere lose the ability to distinguish between men's and women's voices or to tell whether two utterances belong to one and the same speaker or to two different people, as well as to identify even the most familiar individuals by sound only; moreover, the patient also loses the ability to regulate his own voice in accordance with a given emotional situation. (see Balonov & Deglin: pp. 164ff, 171ff). The right hemisphere also acts as a "brake" or "censor"; it exerts a "damping" influence on the language centers of

the left hemisphere (Balonov & Deglin pp. 145ff, 182ff, 186). This property may be correlated with the fact that the expressive features are also right-hemisphere phenomena.

Thus, the right hemisphere is used for all auditory phenomena outside of language, including natural phenomena and human-produced phenomena such as music, and in addition the emotive and physiognomic features, while the left hemisphere is particularly well suited for the distinctive and redundant features. The inactivation of the left hemisphere sharply obstructs the recognizability and reproducibility of distinctive features, redundant features, and the accentual design and internal structure of the word. Under the inactivation of the left hemisphere the network of distinctive features loses its stability and equilibrium, and the disintegration of this system in turn reveals a hierarchical order in the deficits suffered by patients. The most common types of confusion between phonemes are limited to one single distinctive feature, and the various features manifest different degrees of resistibility. In particular, the features which are learned early in child language acquisition and which disappear latest in aphasics, are those which remain most viable under deactivation of the left hemisphere. They are least prone to disappear. (Balonov & Deglin 132, 142, 181) In addition the hierarchical relation within any given feature, the relation known under the term markedness, is also confirmed by these studies with the unmarked value being more resistant than the marked.

At the end of their very interesting monograph, Balonov & Delgin conclude with the following hypothesis:

> "The mechanisms of sound production and the auditory functions of the right hemisphere prove to be considerably older than the mechanisms of sound production and the auditory functions of the left hemisphere which secure speech articulation and the discrimination of speech sounds on the basis of distinctive features." (p. 194)

The asymmetric arrangement of the human brain and the development of the left dominant hemisphere have apparently been interconnected with the origin and growth of language, especially with distinctiveness (sense-discrimination), one of the dividing lines between human language and animal communication.

I might add here that more recent work by Russian investigators on the semantic system of language have proven to be equally fascinating. It seems to be the case generally that those properties of language which are binary, oppositional, and especially are based on markedness are left-hemisphere phenomena, while those properties of language which are more holistic are right-hemisphere phenomena. Thus, not only distinctive and redundant features, but also grammatical meanings (both of morphological and of syntactic phenomena) are handled by the left hemisphere, whereas not only emotive and physiognomic features but also certain aspects of lexical meaning are handled by the right hemisphere. Furthermore, the left hemisphere seems to handle those phenomena which relate to future time, while the right hemisphere handles those phenomena which relate to present and past time. To take the terminology of Charles Sanders Pierce,

we may say then that they symbolic properties of language seem to be left-hemisphere phonemena and the iconic and indexical properties seem to be right-hemisphere phenomena.

It would seem to be the case then that those properties which are unique to human beings — mediacy and the distinctive features, grammatical meaning, future time reference, symbolic signs (in the sense of an imputed contiguity relation between signifier and signified) - all of these are left-hemisphere phenomena. It is obvious that some of the most important research on language in the next decades will come from studies of the brain, and that in particular we can test our hypotheses about language structure against these new findings.

2.3 Thus, the same phonic property may perform different functions in different languages, and different phonic properties may perform the same function in the same language. It is in this sense that sound is, by its very nature, functional or semiotic and not merely phonic; moreover, it is multifunctional, being invested simultaneously with a variety of functions. But it still remains the case that the functions which the various phonic properties fulfill are variously interrelated and that in the hierarchy of percepts contained in the speech signal, the distinctive features are primary while all the others are secondary: the distinctiveness function is not cancellable or optional, while the others are to a greater or lesser degree. An utterance without configurative features might make 'parsing' into words or phrases difficult, or an utterance without expressive features might sound flat and belie inattention on the part of the speaker, but utterances without distinctive features are confined to such restricted patterns as interjections, or intonation contours superposed on e.g. mm or hm (in English), etc. In general, ideational cognitive utterances don't exist without some distinctive features. In fact, even in elliptic speech where certain distinctive features are left out (elided), many still remain; and furthermore certain redundant features assume the distinctive function. Only a certain amount of ellipsis of the distinctive elements is possible, if communication is still to take place.

Thus, if we were to ask what information is carried by speech (linguistic) signal and may potentially be used by members of a given speech community, then we would have to conclude that all aspects of the speech sound are endowed with a linguistic function. It is in this sense that we may say that the speech sound as a whole is an artifact: all of its aspects are communicative and none are pre-given to language. This means that the dichotomy of etic~emic is a false one, as Claude Levi-Strauss has noted: "Both the natural and the human sciences concur to dismiss an outmoded philosophical dualism. Ideal and real, abstract and concerte, 'emic' and 'etic' can no longer be opposed to each other. What is immediately 'given' to us in neither the one nor the other, but something which is betwixt and between, that is already encoded by the sense organs as by the brain" (1972). An 'emic' point of view which focusses only on distinctiveness and an 'etic' point of view which disregards the multifunctionality of the speech components are equally futile and abstractionist.

3. While it is the case that the distinctive features are the sense-discriminative units par excellence and that generally speaking

sense-determination is vested in the redundant, configurative, expressive, physiognomic, and intonational features only — in all language, but to varying degrees and with certain differences between speakers, there is also the tendency (one might even say the "drive") for the distinctive features themselves to have a direct and immediate relation to meaning.[2] The propensity for sense-determination by the distinctive features also means that the essential disunity between the signs with 'mere otherness' and all others is, in a sense, counterbalanced and counteracted by the power of the former to have a meaning of their own.

A particularly interesting manifestation of this drive for immediate signification may be discussed under the heading of sound symbolism, although sound iconism would be more appropriate since there seems to be an iconic (similarity) relation between sound and meaning. In particular, it has been found that there is a latent tendency, which may become patent in certain circumstances, for the sounds of given words to be congruent with (similar to) their meanings. Such correspondences are very often built on the phenomenal interconnection between the different sense - synesthesia, including the most difficult facet of 'colored hearing' (the relation between sound and colors). Given its synesthetic basis, it is not surprising that these iconic associations tend to be universal for the languages of the world. However, such universal tendencies can only be discerned with respect to the distinctive features (the phonemes, being bundles of distinctive features, may evidence too many different tendencies) and are best understood in terms of (relational) oppositions, since the features themselves are oppositional. Thus, the grave~acute feature (low tonality~high tonality) in the vowels and to a certain extent in the consonants, tends to be associated with the oppositions bigger~smaller, thicker~thinner, darker~brighter, softer~harder, heavier~lighter, sweeter~bitterer, slower~quicker, less pretty~prettier, less friendly~friendlier and, for some speakers, with black~white, blue~yellow (darker~lighter colors). (See Jespersen 1922 and 1933; Sapir 1927; Chastaing 1958, 1961, and 1965; Fónagy 1963; Fischer-Jørgensen 1978; Peterfalvi 1970; Köhler 1910-1915; Wellek 1931.) Such correspondences may underlie so-called popular or folk etymology, may contribute to the life or death of certain words, or may lead to a reanalysis of the meaning of given words in the light of the form. Furthermore, it can create, as Lévi-Strauss has pointed out, une petite mythologie (1976). Grammaticization of sound-symbolism may also be found in sound-symbolic ablaut, e.g., in Yoruba, low tone vs. high tone: bìrì 'to be large' vs. bírí 'to be small', ṣùrù 'to be big' vs. ṣúrú 'to be little', gbòrò 'to be wide' vs. gbóró 'to be narrow', kìbìtì 'to be of big size' vs. kíbítí 'of small size' (Westermann 1927 and 1937). Sound symbolism is also, according to e.g., Jespersen (1922), more prevalent in children than in adults - i.e., the symbolic (iconic) import of sounds is reinforced with each new generation. This has great importance for the problem of language origins and language evolution as well as for the differentiation of human and animal communication.

The constant dialectic between the purely sense-discriminative use of the distinctive features and sound-symbolic use (especially when non-grammaticized) was succinctly put by Benjamin Lee Whorf:

> "language, through lexation, has made the speaker more acutely conscious of certain dim psychic sensations; it has actually produced awareness on lower planes than its own: a power of the nature of magic. There is a logic mastery in the power of language to remain independent of lower-psyche facts, to override them, now to point them, now toss them out of the picture, to mod the nuances of words to its own rule, whether the psychic ring of the sound fits or not. If the sounds fit, the psychic quality of the sounds is increased, and this can be noticed by the layman. If the sounds do not fit, the psychic quality changes to accord with the linguistic meaning, no matter how incongruous with the sound, and this is not noticed by the layman." (267f).

A phenomenon similar to sound symbolism in its striving for an iconic relation between form and meaning is reduplication, which is "used to indicate such concepts as distribution, plurality, repetition, customary activity, increase of size, added intensity, continuance" (Sapir 1921), and may serve to impart a playful and at the same time a disparaging tone to the utterance, as it does in Russian (with dissimilation of the initial consonant): sífilis-pifilis 'such a nothing as syphilis' or in English with the use of the phonestheme [šm]: Brooklyn-schmooklyn, Joe-schmoe.

Further tendencies of sounds toward independent signification can be noted under the general heading of word affinities: features, phonemes, collocations of phonemes which are common to a set of words with like meaning may come to be associated with that meaning: e.g., in the series of words nip, clip, tip, sip, dip, grip, pip, quip, yip, flip, drip, the post-vocalic stop is (synesthetically) sensed to be like a 'blow' and the (sound-symbolic) /I/ seems to suggest a briefer focus upon the action (vs. /ae/ in slap, clap, rap, tap, flap, lap): cf. the use of /u/ to suggest foolishness (rube, boob, faloot, loon, nincompoop, stooge, coo-coo, goof, spoof - Bolinger 1965:200), and of fl- as expressive of movement (flow, flutter, flap, flake, flicker, fling, flit, flurry, flirt, see Jespersen 1922 and Bolinger 1965). To this class of phenomena may be added other sense-determinative uses of the features, namely, the restriction in English of word-initial /ð/ to words of deictic meaning (e.g., then, there, the, this, that, they, thee, thou, thy, thine, though, thus, etc.); or, an example of its use in grammatical meaning, the compulsory presence in the Polish instrumental of the nasality feature (either in a nasal vowel or in the consonant /m/; Jakobson 1971b:181). Such sound-meaning association, especially in lexical meaning, can become the basis of a sui generis synchronic etymology labeled "secondary associations" by Hockett (see 1958), "submorphemic differentials" by Bolinger (see 1965), "psycho-morphs" by Markell & Hamp (1969-1961), "phonetic symbolism" by Marchand (1959), "phonesthemes" by Householder (1946). And, as has been pointed out, such associations may lead to the survival of certain members of the general class and to the addition of new members to the class.

An even more radical drive toward immediate signification is to be found in North American Indian "abnormal types of speech" (Sapir [1915] 1949: 179-196), in which people with some defect (e.g., hunchbacks, the cross-eyed, the left-handed, the greedy) are spoken of (or sometimes to) with the insertion of certain infixes in the utterance and with

characteristic changes in consonants (so-called 'consonantal play'). The same types of substitutions are used when alluding to or quoting the 'speech' of such (sacred) animals as the Deer, Mink, Raven, Sparrow, and Wren. Analogous processes may also be used as literary devices in myths and songs: "song texts often represent a mutilated form of the language, but study of the peculiarities of song form generally shows that the normal forms of speech are modified according to stylistic conventions, which may vary for different types of songs" (Sapir 1949:188).

The alternation of the sound-shape in American Indian usage is closely associated with the world-wide process whereby words are variously modified because of taboo. On the one hand, such modifications camouflage the subject meant; on the other hand, to a certain degree they highlight the subject. Furthermore, the sound-shape must not deviate too far from the tabooed shape, or else the taboo character is lost; and the replacement of the tabooed shape by the altered form is felt to be a way of avoiding possible danger, bad luck, or ill will. In some cultures, in addition, the taboo reaches the level of certain sounds or sound combinations which are then prohibited e.g. to either males or females (so-called 'male and female forms of speech'). In Chukchee, for example, women regularly replace /r/ and /č/ by /š/, unless they are quoting male speech, in which case they do not make the substitutions (Bogoraz 1922:665). In Gogo-Yimidjir (Australia) women always use the tense (voiceless) variants of the stops whereas men use the lax (voiced) variants (de Zwaan 1969:216f).

The strongest propensity of the distinctive features for autonomization and for immediate signification is found in the universal phenomenon of poetry (whether of children or of adults) through such obvious phonic poetic devices as rhyme, semi-rhyme, alliteration, assonance, etc., through meter (whether based on number of syllables, number of stresses, etc.), through the general repetition of sound, syllables, words, etc., through the division into lines, strophes, parts, etc., and through the general exploitation of the word 'affinities' noted above. Far from being subordinated to the meaning, in poetry sound plays a leading role, operates in full partnership with the meaning, and may even help to create meaning. Of course, such a leading role may also be present in 'ordinary' adult speech: through thick and thin, forgive and forget, deep sea, sky high; or in slogans: I like Ike; in word play: Focus Pocus (the name of a camera store in Buffalo, N.Y.); punning; and spoonerisms like "Let me sew you to another sheet" etc. And, it should not be forgotten, as has often been pointed out (Cukovskij; Sanches & Kirschenblatt-Gimblett) that all sane children go through a stage where they invent rhymes, play with sound for its own sake, and tend to assign meanings to sounds directly. In many ways, adult speech and adult attitudes toward sound may be seen as the assignment of the primary role to mediated signification while in children its status remains unclear.

While symbolism, synesthesia, word affinities, consonantal play, and in particular poetic usage, show the drive for autonomization through the direct association of sound shapes with meaning, a complementary phenomenon — the drive for autonomization through the use of the sound shape with no meaning attached-- is exemplified by glossolalia, e.g. kindra fendra kiraveca of the Khlysty (Nečaev 140), and kupóy shandré file sundrukuma shandré lása hóya taki of an An American Presbyterian minister (Samarin

1972:77). It is also evident in this magical Russian formula chanted for protection against mermaids (Jakobson 1966:639f):

au au
šivda vnoza
kalandi indi
okutomi mi
šixarda kavda
mitta minogam
jakutašma bitaš
nuffan zidima.

Such usage is correlated with the magic function of language and thus complements, especially, taboo usage as well as mythic consonantal play (noted above). Moreover, in many cases, it is seen as a way for the human and the divine, for the human and the superhuman, to communicate. One interesting phenomenon which awaits further explanation is the prevalence of clusters such as nd, nt, ndr, ntr in these various types of pronouncements by speakers of widely divergent linguistic backgrounds (see Jakobson & Waugh). These mythic uses bear obvious resemblances to avant garde poetry - e.g. Morgenstern's "Das grosse Lalulá", with lines like Seiokrontro-prafriplo, Hontraruru miromente, and Entepente, leiolente; to children's counting out rhymes (game preludes) - e.g.,

Inty, ninty tibbety fig
Deema dima doma nig
Howchy powchy domi nowday
Hon tom tout
Olligo bolligo boo
Out goes you

(see Sanches & Kirschnblatt-Gimblett 1976:92f); to the verbal play which children seem to delight in and to use as a dynamic part of the acquisition process:

Like a piggy bank
Like a piggy bank
Had a pink sheet on
The grey pig out

(see Weir), and to many phraseological expressions in ordinary language (e.g., abracadabra, cf. salaqadula michakaboula bibbidy bobbidy boo, from Walt Disney's "Cinderella").

All of these uses show the so-to-speak 'spell' of the speech sounds, the magical power which is associated with the sound per se. And we see here that the drive for autonomization of the distinctive features is associated with the mythical, the poetic, the magical, and the playful use of language in addition to its so-called 'ordinary use.

4. While 'mere otherness' and mediated and indirect signification separate language not only from systems of animal communication but also from many other human symbolic or semiotic systems, it is supplemented by

those multifunctional phonic properties which have direct signification and it is complemented (or even superceded) by the tendency on the part of the distinctive features themselves for direct signification.

Edward Sapir has said: "what fetters the mind and benumbs the spirit is ever the dogged acceptance of absolutes." (Sapir 1949:159) The research on the brain as well as the work of linguists on the sound shape of language has shown that there should be no absolutization of the dichotomy of 'sound' and 'meaning', but that instead there is an ongoing dynamic dialectic between 'mere otherness' and 'singleness of reference', 'distinctiveness' and 'redundance', 'sense-discrimination' and 'sense-determination', 'mediation' and 'non-mediation', 'direct' and 'indirect' signification, 'structure in the signifier' and 'structure in the signified', left hemisphere and right hemisphere. Such mutually intersecting dichotomies are examples of the pervasive asymmetry of patterning inherent in language, and are manifestations of both the dynamic synchrony and the multifunctionality which are part and parcel of linguistic structure.

FOOTNOTES

[1]This paper is based in part on the conclusions reported in Jakobson & Waugh 1979 and Waugh 1979.

[2]This section is inspired directly by Ch. 4 ("The Spell of Speech Sounds") of Jakobson & Waugh.

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