A STUDY IN PHONETIC SYMBOLISM*

THE SYMBOLISM of language is, or may be, twofold. By far the greater portion of its recognized content and structure is symbolic in a purely referential sense; in other words, the meaningful combinations of vowels and consonants (words, significant parts of words, and word groupings) derive their functional significance from the arbitrary associations between them and their meanings established by various societies in the course of an uncontrollably long period of historical development. That these associations are essentially arbitrary or conventional may be seen at once by considering such a proportion as

> phonetic entity 'boy': idea (or reference) 'boy' =
> phonetic entity 'man': idea (or reference) 'man.'

In passing from the notion of 'boy' to that of 'man' we experience a definite feeling of relationship between the two notions, that of increase in size and age. But the purely phonetic relationship of 'boy' : 'man' takes no account of this. So far as the referential symbolism of language is concerned, the words 'boy' and 'man' are discrete, incomparable phonetic entities, the sound-group b-o-y having no more to do with the sound-group m-a-n, in a possible scale of evaluated phonetic variants, than any randomly selected pair of sound-groups, say 'run' and 'bad,' have to do with each other.

This completely dissociated type of symbolism is of course familiar; it is of the very essence of linguistic form. But there are other types of linguistic expression that suggest a more fundamental, a psychologically primary, sort of symbolism.[1] As examples may be given the interrogative tone in such a spoken sentence as "You say he's dead?" in comparison with the simple declarative tone of the corresponding "You say he's dead"; further, the emphatically diminutive *ee* of *teeny* as contrasted with the normal *i* of *tiny*. In both of these examples the phonetic difference is undoubtedly felt as somehow directly expressive of the difference of meaning in a sense in which the contrast between say 'boy' and 'man' is not. We may call this type of symbolism 'expressive' as contrasted with the merely 'referential' symbolism which was first spoken of. It

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[1] For the two symbolic layers in speech, as in all expression, see Edward Sapir, "Language as a Form of Human Behavior," *English Journal,* 16 (1927): 421-433.

goes without saying that in actual speech referential and expressive symbolisms are pooled in a single expressive stream, the socialization of the tendency to expressive symbolism being far less extreme, in the great majority of languages, than of the tendency to fix references as such.

We may legitimately ask if there are, in the speech of a considerable percentage of normal individuals, certain preferential tendencies to expressive symbolism not only in the field of speech dynamics (stress, pitch, and varying quantities), but also in the field of phonetic material as ordinarily understood. Can it be shown, in other words, that symbolisms tend to work themselves out in vocalic and consonantal contrasts and scales in spite of the arbitrary allocations of these same vowels and consonants in the strictly socialized field of reference? The present paper is a preliminary report of certain aspects of a study, still in progress, intended to probe into any such latent symbolisms as may be thought to exist. The field of inquiry is vast and difficult to chart and I cannot hope to have guarded against all the possible fallacies of interpretation. For the present I have limited myself to the meaning contrast 'large' : 'small' as offering the most likely chance of arriving at relatively tangible results.

The main object of the study is to ascertain if there tends to be a feeling of the symbolic magnitude value of certain differences in vowels and consonants, regardless of the particular associations due to the presence of these vowels and consonants in meaningful words in the language of the speaker. The results so far obtained seem to go far in demonstrating the reality of such feelings, whatever may be their cause. It has also become very clear that individuals differ a good deal in the matter of sensitiveness to the symbolic suggestiveness of special sound contrasts.

A number of distinct schedules have been devised and applied in the research. In the early stages of the work the various types of sound difference were studied independently. For instance, the contrast between the vowel a and the vowel *i* (the phonetic or continental values are intended) was illustrated in every one of sixty pairs of stimulus words, the subject being requested to indicate in each case which of the two in themselves meaningless words meant the larger and which the smaller variety of an arbitrarily selected meaning. For example, the meaningless words *mal* and *mil* were pronounced in that order and given the arbitrary meaning 'table.' The subject decided whether *mal* seemed to symbolize a large or a small table as contrasted with the word *mil*.

In the first experiments schedules of sixty stimulus word-pairs were used, each of whioh was divided into two sections. The first thirty word-pairs involved only such sounds as the subject, an English-speaking person, would be familiar

with, the second set of thirty word-pairs, while still illustrating the same phonetic contrast as the first thirty, say that of *a* to *i,* also involved sounds that the subject was not familiar with. Each of the two sets of thirty was further subdivided into functional groups: nouns, verbs with reference to large or small subject of verb, adjectives with reference to large or small things, verbs with reference to large or small object of verb, and verbs with reference to intense or normal degree of activity. It is important to note that the words were so selected as to avoid associations with meaningful words and it was the special purpose of the second set of thirty word-pairs to remove the subject still further from the intercurrent influence of meaningful linguistic associations.

If the results obtained from a considerable number of individuals can be relied upon as symptomatic, the influence of accidental, meaningful linguistic associations is less than might have been supposed, for the percentage of responses in favor of one of the two vowels as symbolizing the large object tended to be little less if at all, in the second set of word-pairs than in the first. For example, Subj. IK found that of the first thirty word-pairs illustrating a contrast between the vowels o and *i* twenty-two examples of o "naturally" carried with them the connotation "large," five examples of *i* carried this connotation, and three word-pairs were responded to indifferently. The effective score in favor of o as the vowel inherently symbolizing a large rather than a small reference was 22/27 or 81 per cent. In the second set of thirty word-pairs illustrating the same vocalic contrast, 21 of the words involving the vowel a were said to connote the large reference, 5 with the vowel *i* connoted the small reference, and 4 were indifferent. Here the effective score in favor of the symbolic value of the vowel *a* as large by contrast with *i* is 21/26 or, again, 81 per cent. In the case of the vowel contrast a to *e* (with the short value of the French e, as in *tt'e)* IK's effective score in favor of the *a* vowel as connoting the larger reference was 24/29 or 83 per cent for the first 30 word-pairs, 73 per cent for the second 30 word-pairs.

The essential points that seemed to appear from these first experiments with individuals were: (1) that vocalic and consonantal contrasts tended with many, indeed with most, individuals to have a definite symbolic feeling-significance that seemed to have little relation to the associative values of actual words; (2) that it made surprisingly little difference whether the phonetic contrast was contained in a phonetically "possible" or a phonetically "impossible" context; and (3) that the certainty of the symbolic distinction tended to vary with the nature of the phonetic contrast. The last point, which is important, will be discussed later on in this report.

These earlier experiments with individuals, though revealing, were felt as the work proceeded to be deficient in one important respect, namely, that the simple nature of the vocalic or consonantal contrast in a set of word-pairs might be expected to lead to a too ready systematization of responses on the part of the subject. In other words, the average subject could not help noticing after responding to a few stimuli that a certain consistency in the responses would naturally be expected, and that if the

vowel *a,* for example, as contrasted with *e* or *i,* is felt satisfactorily to symbolize the larger of two objects, all other examples of word-pairs illustrating the same vocalic contrast should be dealt with in the same manner. The primary purpose of the experiment, however, was to elicit spontaneous feelings of symbolic contrast, unrevised by any judgment as to consistency of response. For this reason a further and, it is believed, much more efficient experiment was devised consisting of 100 word-pairs involving every type of phonetic contrast that was investigated. These hundred word-pairs were not arranged in any logical order, nor was the order of the contrasted phonetic elements in any particular entry necessarily the same as in another entry involving the same contrast. In the table that was finally adopted the first word-pair illustrated the contrast between *a* and *i,* the second the contrast between *e* and *a,* the third the contrast between *z* and *s,* and so on through the list. The contrast between *a* and *i* was illustrated not only in Entry 1 but also in Entries 41, 81, and 87. In this way, it was hoped, systematization on the part of the subject was necessarily hindered, if not entirely blocked, and the responses actually obtained may be looked upon as normally spontaneous feeling judgments following in the wake of an initial suggestion as to preferred class of symbolic response *(i.e.,* variations in magnitude).

For this second experiment 500 subjects were employed, most of them students of the University of Chicago High School. The subjects were eventually analyzed into the following groups; 6 cases of 11-year-old children, 30 of 12 years, 86 of 13 years, 94 of 14 years, 124 of 15 years, 81 of 16 years, 33 of 17 years, 10 of 18 years, 21 University of Chicago students, 8 adults who were not students, and 7 Chinese. The subjects were provided with forms in which there were blank spaces for each of the entries, and they were carefully instructed to check off the first of the two stimulus words announced by the investigator as to whether it symbolized the larger or the smaller reference. If the response was indifferent, no check was to be entered in either the large or the small column. Very little difficulty was experienced in explaining the conditions of the experiment, which seemed to be enjoyed by the great majority of the subjects as a rather interesting game. It is believed that the results obtained are as reliable as material of this kind can be, every precaution having been taken to arrange conditions favoring simple and unambiguous responses and only the investigator himself pronouncing the stimulus words, in order that all confusion due to slight variations of pronunciation might be avoided.

The phonetic contrasts may be classified on phonetic and acoustic grounds into five main groups. There are also two minor groups which are of lesser interest. In the first group the contrasting vowels belong to the series *a, a,* e, *e, i.* The pronunciation of these vowels, as of all other vowels, was *quantitatively uniform in a given pair* in order that the independent symbolic suggestiveness of quantity differences as such be

ruled out of consideration where quality alone was being studied. The phonetic values of these vowels were respectively those of *a* of German *Mann* (a), *a* of English *hat (d), e* of English *met* (e), *e* of French *4t6 (e), i* of French *fini (i).* It will be observed that the phonetic contrast is gradually lessened within the scale as one moves from *a* to *i.* Thus, *a* to * affords the greatest objective contrast, *a* to *i* or *a* to *e* a lesser contrast, e to *i* or *a* to *e* a still lesser one, and *a* to *a* or d to e or e to *e* or *e* to *i* a minimal contrast. In other words, on purely objective phonetic grounds, one might imagine that the responses would tend to be further removed from a purely random or 50-50 distribution the greater the contrast between the vowels. It was therefore of great interest to determine not only whether there were preferred symbolisms, but also whether the varying percentages of response bore a fairly close relation to objective differences in the sounds themselves as determined on phonetic and acoustic grounds.

The second group of word-pairs illustrates the contrast between vowels on the scale *a, o, o, u, i.e.,* a scale with progressive lip-rounding. The third group illustrates contrasts between rounded back vowels *(u, o, o)* and unrounded front vowels *(i, e, e, a).* In the fourth group of word-pairs there was illustrated the contrast between voiced and voiceless consonants, *e.g.,* between *z* and *s, v* and /, *b* and *p.* The fifth group illustrates the contrast between stopped consonants and spirants or fricatives, *e.g.,* between / and *p, x (ch* of German *Bach)* and *k.*

It would be quite impossible to report on all the details of the experiment in this place. I shall content myself with giving two selected tables. The first shows the distribution of responses for the word-pairs illustrating the contrast between *a* and *i,* classified according to the groups of subjects (11-18 yrs, university students, adults, and Chinese).

It will be observed that the percentage of responses in favor of *a* vs. * ranges all the way from about 75 per cent to about 96 per cent. For the largest group of subjects, the 124 fifteen-year-olds, the percentage is as high as 83, while the small number of 11-year-olds reach the figure 87.5. It is obvious that, regardless of infinite differences of an individual nature as to the general symbolic value of this phonetic contrast or as to its specific value in particular cases, English-speaking society does, for some reason or other, feel that of these two vowels, *a,* by and large, is possessed of a greater potential magnitude symbolism than the contrasted vowel *i.* The same feeling seems to be illustrated by the small number of Chinese cases. Furthermore, within the English-speaking community there seems little reason to believe that there is a significant growth in the firmness of the symbolic feeling after the age of 11. The case of the

eight adults is not really significant because they consisted of high school teachers of English who answered the forms at the same time as their classes. They would naturally have a more self-conscious attitude toward the problem of sound symbolism than individuals selected at random. In other words, however these symbolisms are fixed, it is probable that they are so fixed at a rather early age and that familiarity with literature is not likely to count as a heavy factor in the situation. These general considerations are borne out by all the other findings, and it is of particular interest to note that the Chinese evidence is nearly always in the same general direction as that of the English-speaking subjects. Further work needs to be done on responses of this kind from younger children

TABLE I

PBBCENTAGB OF RESPONSES SHOWING PREFERENCE FOB *a* vs. t TO SYMBOLIZE 'LARGE'

ENTRY NO.	OBSERVED										
	6	30	86	94	124	81	33	10	21	8	7
	Age										
	n	12	13	14	15	16	17	18	Univ.	Adults	Chin.
1	83.3	86.7	90.6	92.3	83.1	84.0	78.8	80.0	85.0	100.0	100.0
41	100.	70.0	82.7	78.0	76.4	71.6	69.7	60.0	95.2	100.0	85.7
81	83.3	93.3	74.7	72.2	81.8	80.0	77.4	100.0	70.0	85.7	85.7
87	83.3	83.3	84.1	86.0	91.8	86.1	72.7	80.0	90.0	100.0	42.9
Ave	87.6	83.3	83.0	82.1	83.3	80.4	74.6*	77.6	85.0J	96.4	78.6

and from other groups of foreigners before the age and language factors can be properly evaluated or dismissed as irrelevant.

The second table is an attempt to show the differential symbolic value of the vocalic contrasts in the *a* to *i* series. Four age-groups (13-16), involving 385 subjects, are represented in this table. It was found in comparing the responses to the different vocalic pairs that they tended to arrange themselves roughly into four distinct groups (A, B, C, D). In the first group, typically illustrated by the contrast between *a* and ***i*** and *&,* and *i,* the percentage of a response in favor of the vowel nearer *a* of the scale ranged from 80 per cent upward. The second group of responses was found to be somewhat set off from the preceding one by **a** marked decrease in the percentage of responses favoring the vowel toward *a* of the scale. This group is typically illustrated by the contrast between *a* and e, the percentage in favor of the 'larger' vowel running from about 73 per cent to 78 per cent. **The third group, illustrated by the typical**