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THE LINGUISTIC VARIABLE AS A STRUCTURAL UNIT.

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RESEARCH ON ENGLISH PHONOLOGY IN NEW YORK CITY IS DESCRIBED. CURRENT LINGUISTIC THEORY IS CONSIDERED UNABLE TO ACCOUNT FOR MASSIVE "FREE VARIATION" IN THE PHONOLOGY OF THE SPEECH OF THAT AREA. ISOLATED WERE PHONOLOGICAL VARIABLES WHICH ARE ASSOCIATED WITH SOCIAL, STYLISTIC, ETHNIC, AND INDIVIDUAL FACTORS IN NEW YORK CITY. QUANTITATIVE INDEXES WERE CONSTRUCTED AND INTERVIEWING TECHNIQUES DEVISED TO ISOLATE CONTEXTUAL STYLES. THE FINDINGS SHOW THAT THE SPEECH OF NEW YORKERS IS HIGHLY DETERMINED BY CONTEXT AND SOCIOECONOMIC CLASS. THE RESEARCH PERMITTED ESTABLISHMENT OF A STRUCTURAL UNIT, THE LINGUISTIC VARIABLE, WHICH IS A CLASS OF VARIANTS SUCH AS MORPHS OR PHONES, WHICH IS ORDERED ALONG A CONTINUOUS DIMENSION, AND WHOSE POSITION IS DETERMINED BY AN INDEPENDENT LINGUISTIC OR EXTRALINGUISTIC VARIABLE. THE THEORETICAL CONSEQUENCE OF INTRODUCING THIS CONSTRUCT IS THE ENLARGEMENT OF LINGUISTIC THEORY. THE AUTHOR SUGGESTS THE ADDITION OF THE LINGUISTIC VARIABLE TO THE REPERTORY OF STRUCTURAL LINGUISTICS TO DESCRIBE REGULARITIES IN LINGUISTIC BEHAVIOR WHICH WOULD OTHERWISE REMAIN INACCESSIBLE. THIS ARTICLE IS PUBLISHED IN THE "WASHINGTON LINGUISTICS REVIEW," VOLUME 3, SPRING 1966. (KL)

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THE LINGUISTIC VARIABLE AS A STRUCTURAL UNIT

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1. Introduction: the implication of sociolinguistic research for linguistic theory

For much the greater part of the twentieth century, general linguistics has been concerned with a very general type of language, independent of the particular speaker, the listener, or the speech community in which language occurs. Considerable progress has been made by adhering to this abstract conception of language--in phonemics and morphology, and now more recently in syntax. Yet in the last few years, there has been a growing interest in the study of language in the context of the speech community. Some conceive of this study as 'sociolinguistics', and envisage a new subdiscipline of linguistics, with its own subject matter and its own problems. Indeed, there are important problems of language planning and multilingual conflict which require such an approach. However, there is a completely different approach to sociolinguistic research, in which these studies are considered as an essential part of general linguistics. This is the point of view that will be presented in this discussion. There is good reason to believe that many problems of general linguistic theory that have been argued to a standstill for decades, can be solved by extending the range of data to be considered. In this report, I would like to show how critical problems of cross-structural variation can be reanalyzed and solved by the introduction of quantitative data from empirical research in the speech community.

It is the introduction of this data, and the new regularities that appear within it, which has strained our general linguistic theory beyond its limit. Problems which have long been recognized in the margins and interstices of linguistic theory are suddenly thrown into high relief. The fact that /ruwt/ and /rut/ are the same words, and yet somehow different words; the massive intersection of schwa with all other English vowels; the overwhelming problem of accounting for gradual change from one categorical structure to another--these problems all depend upon regular alternations which have no place in our general linguistic theory, and their importance is suddenly magnified by the many new and unaccountable regularities that are found in sociolinguistic research.

2. The immediate problem: massive "free variation" in New York City phonology

The theoretical problem which will be confronted here stems from a very particular problem exemplified in the many studies of the New York City speech community.[1] These earlier studies provide keen observation of phonetic detail, and thoughtful analyses of the phonemic system as well, but they are weakest in treating the widespread variation which is characteristic of New York City. For one item after another, we read that New Yorkers show "free variation"--in the use of final and preconsonantal /r/, in the vowel of bad, ask, dance, etc., in the glide of the vowel in sail, daily, etc., and many others. For example, Allen Hubbell says this about the use of /r/ in New York City:[2]

> The pronunciation of a very large number of New Yorkers exhibits a pattern in these words that might most accurately be described as the complete absence of any pattern. Such speakers sometimes pronounce /r/ before a consonant or a pause and sometimes omit it, in a thoroughly haphazard fashion.

Is it possible that such a large part of the speech system of New Yorkers is the product of chance factors? The idea goes against the grain of our conception of language as the most highly structured type of human behavior. Free variation certainly exists, in the sense of irreducible fluctuations in the sounds of a language without any one significant conditioning factor.[3] But

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[1] Yakira A. Frank, "The Speech of New York City", University of Michigan dissertation, 1948; Allan F. Hubbell, The Pronunciation of English in New York City (New York: King's Crown Press, 1950); Hans Kurath and R.I. McDavid, Jr., The Pronunciation of English in the Atlantic States (Ann Arbor: University of Michigan Press, 1961); Arthur J. Bronstein, "Let's Take Another Look at New York City Speech", American Speech 37:13-26, 1962.

[2] Op. cit., p. 48.

[3] "...in a very wide range of fields, including social, economic, medical, and scientific statistics...there is a characteristic irregular fluctuation or variation in the behavior of individual objects, events, and phenomena, the details of which are not predictable within the context under discussion." David Bohm, Causality and Chance in Modern Physics (New York: Harper, 1961), p. 22. Bohm distinguishes chance contingencies of this sort from significant causes which can be isolated by empirical study: both are evidence of the regularity of natural processes, but differ in the number and relative prominence of the causes involved. The characteristic step in the misapplication of "free variation" in linguistics is to assume the absence of significant causes or conditions without empirical investigation.

this is quite a different matter: it concerns oscillations of entire phonemic categories: the set of ingliding phonemes appears and disappears as a whole; large word classes shift phonemic membership; one word class shows a continuous transition across three phonemic boundaries. The problem, then, might be stated in this way: what are the factors which govern the occurrence of /r/ and other variables in New York City? and having isolated such factors, we must ask: how can these new structural elements be integrated into the phonemic system of the speech community?

3. Methods for the quantitative study of linguistic performance

One reason for the complexity of speech behavior in New York City is the fact that variation takes place on many dimensions: social, stylistic, ethnic and individual factors are commingled in the final result. A number of new methods were required to analyze and measure this variation. These have been described in detail elsewhere;[4] here the steps may be summarized in enough detail to show how the linguistic regularities to be discussed were actually derived, and what new conceptual approaches were required.

a. The first step in this procedure, carried out in exploratory interviews, is the isolation of the chief variables that carry social significance. Phonological variables are preferred, because of their high frequency, their immunity to total suppression, their codability, and wide distribution throughout this population. Seventy exploratory interviews suggested the existence of correlations between social, stylistic and linguistic patterns for many of

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[4] "The Social Stratification of English in New York City", (SSEN), Columbia University dissertation, 1964; "Phonological Correlates of Social Stratification" in John J. Gumperz and Dell Hymes (eds.) The Ethnography of Communication (to appear); "Subjective Dimensions of a Linguistic Change in Progress", paper delivered before Linguistic Society of America, Chicago, December 1963; "The Reflection of Social Processes in Linguistic Structures", paper delivered before Eastern Sociological Society, Boston, April 1964, to appear in Joshua Fishman (ed.), A Reader in Sociolinguistics; "Hypercorrection by the Lower Middle Class as a Factor in Linguistic Evolution", in U.C.L.A. Symposium on Sociolinguistics, Los Angeles, May 1964. Isolation of the phonological variables was first discussed in "The Social Motivation of a Sound Change", Word 19:273-309, 1963.

the items that had been tagged as examples of "free variation" by earlier workers. Five main phonological variables were established, and a larger number of phonological and grammatical variables which seemed to show significant patterns of social distribution. The five main variables are:[5] (r), the occurrence of final and preconsonantal /r/; (eh), the height of the vowel in bad, ask, dance, laugh, etc.; (oh), the height of the vowel in Paul, office, talk, etc.; (th), the use of fricative, affricate or stop as the first consonant of thing, thought, etc.; and (dh), the corresponding voiced variable in this, then, etc.

b. The second step is the construction of quantitative indexes for the exact measurement of the variables, taking into account every occurrence of the variable in the word class defined. The analyst codes each phone on a simple numerical scale, ranging from two categories in the case of (r) to five categories in the case of (eh) and (oh). A numerical average of these ratings is the basis for the index; the range of variants and the distribution from the median variant is considered later in various measures of linguistic stability and deviation.

c. The third step is the selection of a sample. This sample must represent a well-defined population, so that one can estimate the relative success in studying this population, estimate the sources of error, and at some later time restudy the population to determine what changes have taken place. In a large city, the enumeration of a census tract alone is a difficult task; the most efficient way to approach this problem is to graft the linguistic study on to an earlier sociological study, and conduct a secondary survey of a portion of the earlier sample. This allows the maximum concentration on linguistic problems, with the greatest gain in reliability.

The main base for the description of the sociolinguistic study of New York City English was a survey of the Lower East Side, using as a base the sample drawn by the Mobilization for Youth analysts in 1961. This selection was a stratified random sample, from which we selected in turn the adult native

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[5] In the notation to be used throughout this paper, parentheses symbolize linguistic variables: thus /r/ is the phonemic category, (r) is the linguistic variable, (r-1) is a particular value or variant of the variable, and (r)-35 is an average index score for the variable.

speakers of English who had not moved within the previous two years, with representation from all of the important ethnic groups, age levels and socio-economic classes. A target sample of 195 adults was constructed for the linguistic survey, and over a four month period in 1963, a total of 157 were interviewed--over 80 per cent--along with 58 children of these informants. Mr. Michael Kac of Haverford College joined me in this field work.

d. One of the most critical steps in this series of techniques is the isolation of contextual styles. One of the basic concerns in the construction of an interview form was an escape from the dilemma of formal context vs. representative sampling. Only through a series of formal interviews in the home can we hope to acquire comparable samples of behavior of a representative cross-section of the population. But we want to obtain not just one style of speech--the whole range of stylistic conditioning is our object. And in the context of the formal interview, informants will use a style which is appropriately careful. On the face of the matter, it may appear that the subject is casual and relaxed; but we must assume that he has another style, a more casual form of speech, which he uses with his family and intimate friends. This assumption was fully justified in the light of our final results.

In the approach used here, the range of contextual styles is conceived as a continuum: by various devices, we elicit controlled samples of styles along this continuum, samples which are ordered by successively greater degrees of attention given to the speech process (that is, more audio-monitoring). In the most informal style, casual speech (Style A), the minimum attention is focused on speech. The range of successively more formal styles includes: Style B, careful speech, the main bulk of the interview; Style C, reading style; Style D, the pronunciation of isolated words; and Style D', the pronunciation of minimal pairs distinguished only by the variable in question.

The first two thirds of the interview is designed about the problem of eliciting casual speech. Two topics are embedded in the interview which allow the subject to disregard the constraints of the formal situation. One of these is a discussion of childhood rhymes, and the code of oral legislation used by preadolescent children. Here the use of careful speech style is inappropriate,

in some cases actually impossible.[6] The second topic is introduced by a question about situations in which the informant was in serious danger of being killed. As he recounts such an incident, his reinvolvement in the situation distracts his attention from the interview situation, and we obtain spontaneous speech, with the same phonological characteristics as casual speech, breaking through the formal constraints of the situation.

Three other contextual situations may be defined in which the constraints of the formal interview normally do not apply: speech outside the interview proper, speech to a third person, and long digressions not in response to a direct question. In five contexts, therefore, we find that casual speech *may* occur. The actual occurrence of casual speech is defined by accompanying channel cues independent of the phonological variables: changes in tempo, pitch, volume; laughter; or heavy breathing. If in one of the five contextual situations designated, at least one of the five channel cues is recorded, the utterance is marked as *casual speech*, and the values of the phonological variables are used for the average index scores for casual speech.

4. The pattern of stylistic variation

To illustrate the way in which phonological behavior is correlated with this range of contextual styles, we may take the example of one informant, Susan Salto, 37 years old, a third generation New Yorker of Italian background, who works as a sempstress and a beautician.

In the greatest part of the interview, registered as *careful speech*, Style B, this informant used constricted /r/ in 26 per cent of the cases where the variable (r) was observed.[7] In this case, the index is this percentage: (r)-26.[8] In the sections marked *casual speech*, Style A, she showed (r)-02.

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[6]For example, in "I won't go to Macy's any more, more, more/ There's a big fat policeman at the door, door, door/" it is almost impossible to repeat these lines using the /r/-pronouncing style of careful speech with low (oh) vowels.

[7]The variable (r) includes all instances where orthographic or historical *r* occurs in final and pr consonantal position., except after mid central vowels as in *her*, *were*, *work*. These latter word classes are studied separately as different variables.

[8]The notation (r)-26 means that in 26 per cent of the occurrences of the variable (r), a plainly constricted [r] was recorded. All transcriptions are made from the tape recordings of the interviews.

In the more formal direction, Style C, she jumped to (r)-58; in Style D, to (r)-61, and for Style D', where (r) was the chief focus, (r)-100. In this final style, for example, she consistently distinguished god from guard by the use of constricted /r/ in guard.

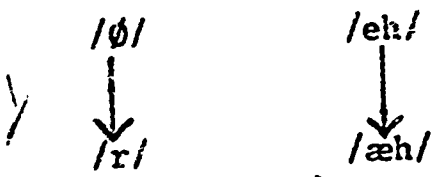
At the same time, Susan Salto showed equally regular progressions in the other four phonological variables. In casual speech, she showed (eh)-20, a pronunciation in which the vowel of bad was the same as that of bared. In careful speech, she used more and more open vowels, with (eh)-28; in reading style, (eh)-36; in word lists, (eh)-40. In this most formal style, she consistently pronounced bad, ask, dance, half, cash, etc. with the same low vowel as with bat.

In general linguistic terminology, the behavior of Susan Salto can be described as an alternation between two phonemic categories:

/r/ ~ /ø/

/æh/ ~ /eh/

But to represent the regularities which we actually observed, we would have to indicate somehow the regular transition between these categories, perhaps with a symbol such as this:

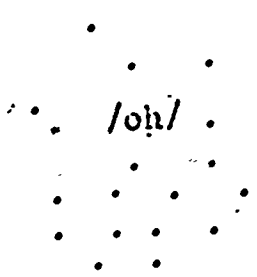


However, the arrows shown here have no place in the alphabet of structural terminology. Various devices have been used in the past to handle the problem of cross-structural variation. We might, for example, speak of coexistent phonemic systems. But the structural invariant here is not only the two endpoints: it is also the regular transition between them. We can speak of dialect mixtures in varying amounts: but it can be shown that Susan Salto is not borrowing from any one else's dialect. This transition is itself a characteristic of her own dialect. If we should adopt the method of autoprescriptive norms currently used with good results in generative grammar for working with informants, and ask Susan Salto to re-edit the text, then the categories /ø/ and /eh/ would disappear altogether, together with the transitions. We would have attained simplicity, but an uninteresting simplicity.

The concept of idiolect might be employed here: we might isolate each style as a separate idiolect, and attempt to describe that. However, the over all result of this study indicates that idiolects are not the most consistent, most explicable unit of linguistic behavior in New York City. On the contrary, the speech of many individuals appears as studded with oscillations and contradictions, and it is only when it is placed against the over all framework of social and stylistic variation of the speech community that we can discern the regular structural pattern that governs this behavior.

The variable (oh) provides a different type of problem in variation. None of the variants used by Susan Salto are comparable with the sounds used in any other word groups. Furthermore, she does not use any single variant consistently. Her index score in casual speech is (oh)-25, indicating a mixture of the high, overrounded, partly centralized form [ɔ̈ˑ], with a lower, less rounded form [ɔ(ə)], not much different from that used by most Americans before [r]. In careful speech, the index is the same, but in reading style, she moves more towards the lower form with (oh)-29, and in reading a word list, to (oh)-33. This last index indicates a mixture of the lower form [ɔ(ə)] with a few even lower vowels, approximating the low back rounded vowel [ɒ] of Eastern New England.

From the standpoint of cognitive function, none of these variants are significant, and they might all be included within a single phonemic category. Instead of cross-structural variation, we have ordered variation, with a wide range of dispersion within a category:



We have been accustomed to think of such a unit as an integral category. The type /oh/ recurs as an invariant, and the distribution of tokens within this type cannot be significant, that is, this minimal unit has no interior structure. But we would like to account for the structural regularity we have observed; more importantly, in considering the structural analysis of the evolution of New York City speech, it will become increasingly evident that (eh)

and (oh) are parallel units. The parallel cannot be in the phonemic categories, for the front vowels show cross-structural variation, with two units, where the back vowels have only one. Therefore we would like to add a structural unit to the analysis of (oh) similar to that used for (eh):[9]

/oh/

As the result of the procedure followed in the isolation of contextual styles, a certain degree of regularity has appeared in the phonological behavior of this one informant. Her use of (r), for example, is far from random--it is surely not the product of pure chance. Yet the linguistic situation in New York City is not clarified by such regularities. Almost every individual would seem to operate with a different system: some using a great deal of /r/, some with very little; some using the high (eh-1) variant exclusively, others always using (eh-4), and the majority somewhere in between. In what way can there be said to be a coherent structure for this speech community?

At this point, the importance of a systematic selection of informants and the cross-classification of their social characteristics becomes evident. It is necessary to pass from the question of stylistic variation to that of social variation, where an even higher degree of regularity may be found.

5. The pattern of social variation

There are many aspects of social structure which might be correlated with linguistic performance, in order to find the underlying regularities in interpersonal variation. Socio-economic class is one of the most important elements of social structure in complex urban communities, and correlation with the linguistic variables immediately shows a strong relation.

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[9] A great deal of evidence shows that (eh) and (oh) are structurally and functionally parallel: their distribution in the population, direction of stylistic shift, evolution through several generations, patterns of subjective response. They differ in that (eh) was established earlier, and is subject to the most overt social correction; (oh) is less prominent, and has not yet appeared as a socially significant variable in the speech of all socio-economic classes. See SSEN Ch. 7, 8, 9, 11, 12. The most conclusive evidence is shown in the statistical covariation of these variables.

The scale of socio-economic ranking used here is one developed by Mobilization for Youth from their original data, using the objective indicators of productive status based on occupation (of the breadwinner), education (of the breadwinner), and income (of the family, per capita).[10] These are combined with equal weights into a composite index of socio-economic class (SEC), ranging from 0 in the lowest bracket to 9 in the highest.

In the analysis of the New York City data, a great many detailed correlations for each variable were found, and the differences in the behavior of the five main variables were important in the reconstruction of the evolution of the New York City vowel system.[11] Some variables showed fine stratification, and it was possible to show correlations with each of six subdivisions of the basic 0-9 scale. Others showed sharp stratification into two major groups. However, if we disregard the differences, and divide the SEC scale into three equal sections for all five variables, we obtain the very regular matrices of Table 1.

In Table 1, there is systematic variation for each variable for each social class and for each contextual style. The 0-2 group may be considered informally as lower class; the 3-5 group as working class; and the 6-9 group as middle class.[12] These regularities show us that the speech of New Yorkers is highly determined by both context and socio-economic class; that the determination is regular in its effects for groups as small as ten individuals, though not necessarily for groups smaller than five; that the two effects are not independent, but show a covariation which indicates that social and stylistic variation are results of a single underlying process.

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[10] See SSEN Ch. 7, pp. 216-224, for a detailed discussion of the selection of this index.

[11] See SSEN Ch. 9, 12.

[12] A division of the middle class group into lower middle class 6-8, and upper middle class, 9, was found to be a regular characteristic of linguistic and social behavior in all of the more detailed studies.

TABLE 1

CLASS STRATIFICATION OF THE VARIABLES

Class Group 0-2

	Style A	B	C	D	D'	N:				
(r)	02.5	10.5	14.5	23.5	49.5					
(eh)	23.0	27.0	29.0	32.0		18	22	14	17	17
(oh)	23.0	24.0	24.0	21.0		13	21	13	17	
(th)	78.0	65.0	43.5			16	22	13	15	
(dh)	78.5	56.0	49.0			18	22	13		
						17	22	13		

Class Group 3-5

						N:				
(r)	04.0	12.5	21.0	35.0	55.0					
(eh)	25.0	28.0	30.5	32.0		26	28	26	27	26
(oh)	19.5	22.0	23.0	24.0		21	27	26	27	
(th)	68.0	53.5	27.0			23	28	26	27	
(dh)	63.5	44.5	34.0			15	28	26		
						22	28	26		

Class Group 6-9

						N:				
(r)	12.5	25.0	29.0	55.5	70.0					
(eh)	27.0	30.0	34.0	35.0		21	30	29	29	29
(oh)	20.0	23.5	26.5	29.5		23	30	29	29	
(th)	25.5	16.5	10.0			27	30	29	27	
(dh)	29.5	16.5	13.0			23	30	29		
						27	30	29		

6. The linguistic variable

The exact measurement of sociolinguistic behavior permits a more precise characterization of the structural unit symbolized by the arrows above. It may be termed the linguistic variable. Whereas the linguistic variant is a particular item--a morph or a phone--the variable is a class of variants which are ordered along a continuous dimension and whose position is determined by an independent linguistic or extra-linguistic variable.

In the over all symbolization of the phonemic system of New York City, we can now insert the variable (r). This particular variable appears as a frequency with which /r/ is observed in a given environment.

$$(r) = X\ /r/$$

where X is the frequency with which /r/ appears. In turn, X is correlated with the social variables of socio-economic class and contextual style:

$$X = f\ (S, C)$$

S = stylistic level
C = class status

More precisely, we can make some estimate of what the function f may be. Table 1 does not depart seriously from the linear model:

$$f\ (S, C) = aS + bC + c$$

One cannot proceed beyond this point at present. In order to specify the values of the constants a, b and c, it would be necessary to develop a numerical evaluation of the continuum of formality of style. Although Styles A through D' are shown equally spaced on the graph, it is evident that we can only say that they are ordered qualitatively: quantitative relations remain to be determined.

Further studies of the distribution of the variables show that some are correlated with ethnic group membership; some are correlated with age, reflecting an underlying process of change in real time. With the help of this information, we can reconstruct the stages of the evolution of the New York City vowel system. It was noted above that the linguistic variable permits us to describe systematic variation across and within categorical units such as the phoneme. It also allows us to produce a plausible mechanism for structural change.

Some linguistic variables are functions of other linguistic variables, and are not directly influenced by any factors outside of the linguistic system.[13] Others are functions of extra-linguistic factors: socio-economic class, ethnic group, age, and so on. These extra-linguistic factors are in constant process of change themselves: social stratification may increase, ethnic groups are assimilated, children continue to react with and against their elders. The linguistic variable reflects this change by a gradual shift of distribution of its variants: for example, we may hear higher and higher variants of (eh) in bad, ask, dance in the course of several decades, until the vowel passes from the status of a low front vowel to a high front vowel. Identification of the principal variants with vowels appearing in some other word classes may lead to a concentration of variants at a particular phonemic level.[14] If the conditioning factor disappears completely, the linguistic variable loses its ordered structure, and is resolved into one or more phonemic categories. On the other hand, we can see some phonemic categories gradually entering into the systematic ordering of a linguistic variable: in the case of (oh), we are fortunate in being able to witness this process in vivo, as this item gradually acquires social significance for the working class and the lower class.[15]

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[13]The position of the low central vowel (ah), for example, is closely correlated with (oh). While (oh) shows a significant distribution according to style, class, age and ethnic membership, (ah) shows little social significance of this type, and is essentially constant in the speech of a given person. When (ah) does fluctuate, it is with replacement of the short lax vowel /a/, and this is directly correlated with the use of /r/ in the variable (r).

[14]This is the case with (eh), where we find a heavy concentration of variants at the level of (eh-2), the mid position of bear, where, bared, and also (eh-4), the low position of bat, bad.

[15]The lower class informants showed no consistent social or stylistic variation for (oh); working class informants showed some differentiation of the high form of casual speech from slightly lower forms in other styles; lower middle class informants displayed a consistent and wide range of variation from the very highest to the very lowest variants, closely correlated with stylistic context. Subjective response tests showed the lower middle class with the greatest sensitivity to this variant, and lower class with the least.

One difficulty in the use of the linguistic variable as a structural unit is that we may write (r) for the phonemic structure of a New Yorker who never uses /r/ in his own speech. For additional evidence to support this step, we may turn to the study of unconscious subjective reactions to the phonological variables.

7. Subjective reactions to phonological variables

So far, our statements about the social significance of the phonological variables are based upon inferences made from their distribution in actual speech. We would like to know more exactly whether the members of the New York City speech community do react to the values of these variables and judge the social status of the speaker on the basis of the sociolinguistic structure just exhibited. The task is exceptionally difficult because subjective reactions to individual variables are well below the threshhold of conscious attention. In normal situations, they are inextricably mixed with reactions to voice qualifiers, intonation, articulation, what the speaker is saying, and his general appearance. In the survey of the Lower East Side, a subjective reaction test was developed which successfully isolated unconscious evaluations of the informants to the five main variables.

The details of the methods used in this subjective evaluation test, and evidence for their reliability and validity, have been reported elsewhere.[16] Here we may consider the distribution of (r)-positive response: that is, the pattern of subjective response characteristic of New Yorkers which is consistent with the recognition of /r/-pronunciation as a prestige feature. Tables 2 and 3 compare the distribution of the actual use of /r/ with the subjective evaluation of /r/:

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[16] See SSEN Ch. 11, and "Subjective Dimensions of a Linguistic Change in Progress", cited above.

TABLE 2[17]

AVERAGE INDEXES FOR (r) IN STYLE A BY SEC AND AGE

	SEC							
Age	0-1	2-5	6-8	9	N:			
20-39	00	00	00	34	3	13	9	4
40-	00	06	09	09	10	25	8	7

TABLE 3[18]

PERCENTAGES OF (r)-POSITIVE RESPONSE TO THE TWO-CHOICE TEST BY SEC AND AGE

	SEC							
Age	0-1	2-5	6-8	9	N:			
20-39	100	100	100	100	3	13	11	5
40-	63	60	70	57	8	26	10	7

Table 2 shows that the great majority of New Yorkers are for all practical purposes /r/-less in everyday speech (Style A). Only the younger Class 9 group shows any appreciable amount of /r/--that is, the upper middle class, college educated group below the age of 40. But in Table 3 the situation is radically different. The entire group of younger speakers, irrespective of class, shows an (r)-positive response, while the older speakers are quite erratic and show no fixed pattern.

The subjective reaction test is important in establishing the validity of the over all sociolinguistic structure which has been suggested for the New York City speech community. I would like to suggest that we consider the speech community as defined by the set of evaluative norms rather than by any universal feature of speech performance.

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[17] Derived from Table 4, Ch. 9, SSEN p. 346.

[18] Derived from Table 11, Ch. 11, SSEN p. 431.

It follows that an individual who does not use any /r/ in his everyday conversation, nor perhaps in any conversation at all, still participates in the sociolinguistic structure of the community as a whole. The variable (r) appears in his phonological system. The particular value of the function

$$X = f(A, S, C)$$

A = age
S = stylistic context
C = class membership

for this particular age, style, social status, indicates that the phoneme /r/ will not appear. But, barring any further change in the situation described by this function, we can point to particular values for age or formality at which members of this social group will use the category /r/.

Thus we have arrived at a very general result: that the most systematic structure is not that of the individual (or the idiolect), but that of the speech community. This is in accord with our most general linguistic principle as enunciated by de Saussure: that <u>language</u> is not an aspect of individual behavior, but rather of social behavior.

8. Conclusion: the enlargement of linguistic theory

The utility of the linguistic variable as a concept, as a working tool, and as a structural element of analysis has been demonstrated in this discussion. One might introduce examples from other areas of linguistics where such a unit may solve long-standing problems. At this point, however, it would be useful to re-examine the theoretical consequences of introducing this element into formal linguistic analysis.

Behind all of the major linguistic theories that are discussed actively today, there seem to be a common set of assumptions about the nature of structural units. This set of assumptions I would call the "categorical view". It includes the assertions that all linguistic units are:

1. discrete
2. invariant
3. conjunctively defined
4. qualitatively different

By <u>discrete</u> is meant that the units are separated from each other by clear-cut discontinuities of form or function; by <u>invariant</u>, that the unit as a type recurs as precisely the same in each occurrence, despite the fact that tokens

may vary; by conjunctively defined, that there is a set or properties associated with the unit which are in some way necessary, essential, as opposed to other properties which are accidental or redundant; by qualitatively different, that the units are completely different from one another, and not distinguished as homogeneous elements in an ordered sequence. A fifth property may be considered as an extension of discreteness: although some structural units are compounded of others, there is a limit to any such subdivision, and there are for each field a set of atomic primes, integral categories, for which no further subdivision is possible.

These properties of linguistic categories are far from arbitrary. They appear to correspond well to the basic structure of language as we deal with it everyday. It is sometimes said that man is a categorizing animal: it is equally appropriate to say that language is a categorizing activity. The abandonment of any one of these properties might be shown to have unfortunate consequences for linguistic analysis.

Nevertheless, some modification seems necessary, for there are several types of variation which seem to resist this strictly categorical framework. As we have seen, cross-structural variation is one such type; the regular ordered variation within a category is another; the problems of dealing with change from one set of categories to another has been discussed. Finally, there is the problem that the categorical view often faces alternate analyses which are equally consistent with the observed facts, and the choice between the two cannot be made on the basis of empirical observation within the theory.

The multiplicity of methods that have been developed for dealing with variation seems to be an indication of the seriousness of the problem. Simple neglect is one such method, perhaps based on the view that variation below a certain level of structure is automatically nonlinguistic. Another approach is the concept of the idiolect as the ultimate structural reality. Coexistent phonemic systems have been discussed. The common core and over all pattern concept has been explored, although with serious results for the underlying concept of linguistic structure. For dealing with the problem of temporal variation, linguistics has provided a rule of absolute division between synchronic and diachronic analysis. One of the most commonly used methods followed today is that of the school of generative grammar. By setting aside the

evidence of contextual behavior in favor of a normative, edited text, it is possible to dispose of a great deal of troublesome variation. However, it can be pointed out that many of the successes of this type of analysis have been achieved in areas where normative patterns are highly systematic--that is, in syntax--and this property may not extend much further.

The solution that I am advocating here is to add a different type of unit to the repertory of structural linguistics: the linguistic variable. The variable is distinguished from the category by the fact that it has an internal structure which is indefinitely divisible. Variables are not primes, and they do not contain primes. Furthermore, a variable may not be conjunctively defined. It is not invariant, in so far as its further extension may be governed by its correlations with other variables, linguistic or nonlinguistic. Thus the gradual extension of (eh) to include /ih/ in New York City is the product of the gradual extension of the social factors with which it was correlated.

The variable is of course an abstraction. In actual texts, we meet with variants only. However, the move from variant to variable is the basic step which must be taken here. It implies that the speech performance of the individual or the group is best explained through the assumption of an underlying linguistic continuum, in which categories form, reform and dissolve. Empirical proof for this claim must be made in each case: it is accomplished by showing that the smallest possible change in some independent variable always produces a change in the dependent variable, that is, the linguistic variable in question.

$$\text{If } X = f(S), \quad \text{then} \quad X + \Delta X = f(S + \Delta S)$$

The empirically established statement of the continuously divisible character of the linguistic variable is a necessary condition for its use in structural analysis. Variation must be (1) ordered, and (2) correlated with some independent variable. If such strict conditions were not laid down, the linguistic variable would provide an easy solution to almost any structural problem, but at the cost of eliminating all rigorous method.

There are undoubtedly many advantages to be gained from introducing the linguistic variable as a structural element, and some no doubt remain to be

explored. I have attempted to provide some evidence that this is a fruitful direction for linguistic theory: with this concept, we can describe many regularities in linguistic behavior which would remain inaccessible to the limited view of a purely categorical theory.