SOCIALLY DETERMINED VARIATION IN THE NASAL CONSONANTS OF ENGLISH IN DETROIT

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ABSTRACT

SOCIALLY DETERMINED VARIATION IN THE
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by William K. Riley

Linguists have recently proposed that certain phonological phenomena serve as indices of social level. For this research, one of these types of phonological phenomena, the nasal consonants, is studied, to see whether the realization of the nasal consonants could be correlated with social and other non-linguistic facts about the informant.

Brief passages of tape-recorded speech are examined, the kinds and numbers of nasal consonant phonemes and allophones determined, and the relative frequencies of each tabulated. The passages of speech are taken from tapes of thirty-six interviews from a larger corpus of seven hundred conducted in Detroit, Hamtramck, and Highland Park, Michigan by the Detroit Dialect Study in the summer of 1966. Three general kinds of pattern are shown.

First, the nasal consonants may be realized as nasalization of a preceding vowel or glide segment. This occurs more often among males than among females; among lower social level persons than among upper; more often among negroes than among whites; and more often among teenagers than among those of other ages.

Second, the nasal consonant may be realized as a "non-normative" phoneme of the morphophoneme |N| following the same general pattern of distribution as the nasalization of the vowel. This may be seen as a measurement of phonological context sensitivity for the nasal consonants. In this case, lower social level informants, males, negroes,

and teenagers evidence greater context sensitivity than upper social level informants, females, whites, and adults and children.

Third, the realization of /ŋ/ as /n/, when the morphophoneme occurs in "participial -ing" occurs more often among lower than among upper social level informants, more often among males than among females, more often among negroes than among whites, and more often among teenagers than among persons of other ages.

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INTRODUCTION

The history of linguistic studies in part shows a movement from the broad and general, in both methods and goals, to the narrow and specific. Early students of language were interested in describing a grammar which would contain the elements, concepts, and relationships which were thought to underlie all language, (Waterman, 1963, p. 12). In more recent times an increasing acquaintance with the different languages in the world led some linguists to postpone the search for universals of language in favor of the search for accurate methods of describing the variations of language. Most recently a number of linguists operating with the transformational generative model of linguistic analysis and description have explicitly advocated a return to the search for language universals. The two points of view are not incompatible, but represent differing emphases and motivations for essentially the same kinds of research.

It is in the field of dialectology that this historical narrowing process is most apparent. This particular facet of the linguistic discipline began with the early workers in comparative Indo-European studies, (Pedersen, 1962, p. 9). At the outset these men were interested in discovering the relations between the various modern European languages, and in showing their historical relations to such well-known ancient forms of language as Greek, Latin, and Sanskrit. The emphasis in these early studies was primarily on history.

As the probable relations between the modern languages became clearer, and their probable descent from the earlier forms was postulated, attention shifted to the variations which still existed within a given language. At this point the emphasis became geographical, and attempts were made to discover ways of collecting and analyzing data from differing forms of the same language, (Labov, 1966, pp. 16-18). The culmination of the work in regional variation came in this country with the assembly of the Linguistic Atlas of the United States and Canada under the leadership of Hans Kurath (1939A). In the process of collecting the data for this work, it became apparent to many students of language, (Fries, 1940, pp. 9-11) that the next step in the narrowing of interests and methods would be to the study of social variations within a single geographical region.

A first step in the direction of accounting for variation by social differences was attempted by the Linguistic Atlas. Informants of three main types were chosen, and each of these types could be divided into sub-types of either "Type A: Aged, and/or regarded by the field worker as old-fashioned", or "Type B: Middle-aged or younger, and/or regarded by the field worker as more modern," (Kurath, 1939B, p. 44). The main types listed by Kurath in the same place were:

> Type I: Little formal education, little reading and restricted social contacts.
> Type II: Better formal education (usually high school) and/or wider reading and social contacts.
> Type III: Superior education (usually college), cultured background, wide reading and/or extensive social contacts.

Two difficulties arose which suggested changes in future work. First, the communities from which the informants came were generally very

small and rural in character, and consequently did not begin to approximate the complex social structure and extreme variation of social status which were known to exist in the many urban areas of the United States. Second, the selection of informants to represent only a few of the many possible social levels was done on the basis of rather ill-defined and ultimately subjective criteria. For instance nothing was said about how much reading constitutes "wide reading," what was to have been read, nor how the informant's reading experience was determined. Furthermore, there is no definition of "cultured." An informant might be classified as "cultured" if his speech did not contain certain forms which the linguist had come to identify with lower levels of society. The final assignment of a given speech form to a social level was then done on the basis of some unstated feeling of the linguist, rather than on some objectively verifiable evaluation of the social status of the informant. Kurath (1939B, p. 44) describes the classification of informants as "cultured" in the following way:

> The 'cultured' informants of type II have less formal education than some of type III but speak a cultivated type of speech because of family background or self-education; on the other hand, the informants of type III who are not regarded as 'cultured' readjusted themselves to the common speech of the community after attending college (engineers, lawyers, one-time teachers, etc.)

In the past few years many further refinements in methodology have been made so that now the linguist may with some confidence begin the attempt to describe social variation in the speech of inhabitants of the many large metropolitan centers of our country. Early work has now been done in New York City, Chicago, Washington, and Detroit, (Shuy, 1965).

Perhaps the most succinct statement of the direction in which such research is going is the following by William Bright, (1966, p. 11):

> However, although sociolinguists derive much of their approach from structural linguistics, at the same time they break sharply with one linguistic trend. This is the approach which treated languages as completely uniform, homogeneous or monolithic in their structure; in this view, now coming to be recognized as a pernicious one, differences in speech habits found within a community were swept under the rug as 'free variation.' One of the major tasks of sociolinguistics is to show that such variation or diversity is not in fact 'free,' but is correlated with systematic social differences.

CHAPTER I

METHODOLOGY

The Detroit Dialect Study

One recent language research project which attempted to investigate social variation in urban language is the Detroit Dialect Study. More than seven hundred interviews were conducted in Detroit, Michigan in the summer of 1966. The project is directed by Dr. Roger Shuy and supported by funds from the United States Office of Education. School children of the fourth, fifth and sixth grades were sampled randomly in each of nine geographical divisions of the city, including the independent cities of Hamtramck and Highland Park, which are surrounded by Detroit. Parents, grandparents, and older siblings of the school children were also interviewed.

The interviews were tape recorded, using a small, portable, battery powered tape recorder and a lavalier microphone, in order to minimize the constraints on natural speech which might be posed by other more conspicuous recording techniques. The informants were interviewed at home, whenever possible at the same time that other members of the family were being interviewed in separate rooms by other investigators. This was done so that the influence of spectators and of school room speech might be avoided. Further information on the exact nature of the sample, the questionnaire, and the interview

is available in the reports of the Detroit Dialect Study to the United States Office of Education, (Shuy, April 1, 1966 through August 18, 1967).

An informant data sheet was filled out at each interview. It contains most of the non-linguistic information acquired about each informant, much of which was checked for accuracy by reference to the data sheets from interviews with other members of the household who were also interviewed. In another project done for the Detroit Dialect Study, Dana Downing used this information, with some additional information gathered at a later date, and several standard sociological techniques to establish a rank for each informant's social level. Four weighted figures were used to represent education and occupation of the head of the household, condition of residence, and income. In the following pages, the larger numbers represent the lower social levels, and the smaller numbers represent the higher social levels. Further information on the compiling of these social level numbers is available in the reports of the Detroit Dialect Study, (Shuy, April 1, 1966-August 18, 1967).

One of the immediate goals of the Detroit study was to collect data which would contain evidence of the language forms current in Detroit, which could then be used to construct materials that would aid in the improvement of the teaching of English, language arts, and reading in the city's public and private schools. With this goal in mind, the fieldworkers were asked to construct some preliminary ideas about what grammatical, lexical, phonological, and syntactic features in Detroiters' speech might be socially distributed. Any items which the fieldworkers as a group considered to be potential indices of

social status would then be assigned priority in the process of analysis.

One phonological phenomenon which was generally suspected by the fieldworkers to be a potential social index was the variety of articulation of the English nasal consonants. Phonemic analyses of American English generally identify three nasal consonants, /m/, /n/, and /ŋ/, (Gleason, 1961, pp. 14-26). In a close phonetic transcription of American English speech, the vowels and semivowels which are next to these consonants are generally marked as nasalized. However, the consensus of the Detroit fieldworkers was that in certain informants' speech, strong nasalization of surrounding vowels and semivowels was frequently retained, but the labial, alveolar, or velar closure for the nasal consonant was either not made at all or made very weakly.

In a recent article in Language, André Malécot (1960, pp. 222-9) proposes nasality of vowels as a distinctive feature of American English. His experiments were performed with a very limited number of single words, in each of which the nasal consonant was followed by a homorganic stop consonant. Malécot concludes (p. 229):

> Phonetically, there is almost always a vestigial nasal consonant segment present, clearly perceptible in hunt and hint, for example, but usually so short as to be practically insignificant. . . . In its place, we have come to rely for manner information primarily on the nasality that the vowel has acquired by anticipation of the nasal consonant.

Malécot also notes that in his selected body of data, since nasal consonants are always homorganic with following stops, the stops carry sufficient information to identify which of the nasal consonants is represented by the nasalization of the vowel.

Malécot's interesting research does not, however, describe the distribution of this nasalization phenomenon among the population. It also does not include any consideration of what happens to nasal consonants at the ends of utterances or between vowels. The present research is an effort to find ways of describing this sort of variation and correlating it with non-linguistic information about the informant.

Selection of Informants

The first problem faced in the present phonological study was the necessity to select from among the more than seven hundred interviews a sufficient number of informants to assure a fairly wide spread in social level, sex, race, age and region of the city. At the same time it was felt that the number of tapes studied should not be so large as to prohibit a reasonable expectation of completion of the project in a year or so.[1]

Preliminary studies, (Shuy, April 1, 1966-August 18, 1967), similar to the present one are being carried on concurrently, and in these the subject of analysis is a number of different grammatical and syntactic phenomena. These were again phenomena which the fieldworkers had felt might prove to be social indices. For one of these studies a sample of the total body of tapes was made, but not randomly. Four tapes were chosen from each of the nine geographical areas in Detroit, Hamtramck, and Highland Park which had been the basis of the total sample. Two of these tapes were interviews with school age children, one with an adult, and one with an older sibling, who was often a teenager. The criteria by which tapes were chosen were: that the informant should be a native of Detroit; that

the fieldworker should feel the informant was in some way representative of the persons interviewed in that area; and that the fieldworker should feel the interview was a good one in terms of the apparent ease and naturalness of speech of the informant.

It was felt that in order to assure the occurrence of a fairly large number of the nasal consonants in all their varieties, several minutes of speech from each informant should be studied. It was at this point that a further criterion for the selection of tapes for this study seemed to be necessary, that is, the presence in the interview of a relatively long, uninterrupted passage of speech by the informant.

Problems of Analytic Method

Very little has been published on the methods of analysis of suspected phonological indices of social level. Consequently the analyst must endeavor to ensure that his methods will yield meaningful results, even though he has little previous work on which to base his methodology. In order to limit potential errors, it seems reasonable to require of the data as few uncontrolled variables as possible.

One well known, but little described, variable in spoken language is style. The various styles of written English have been for a long time the subject of intense study and analysis. There are presently available to teachers of composition and creative writing many exhaustive descriptions of the styles of written English. The same is not true for spoken American English, however. Until recently few serious attempts had been made to distinguish and

classify the styles of speech. One of the first useful attempts at discussing stylistic variation is Martin Joos' "The Five Clocks," (1962). Joos distinguishes five different styles, primarily by the contexts within which they may occur. He does not separate spoken from written styles, however. In his recent book, Linguistics and English Grammar, H. A. Gleason (1965, pp. 358-61) uses Joos' earlier work as a basis for his discussion of five "keys," which are styles of spoken English. These are again distinguished from each other primarily by situational clues.

In an effort to delimit styles even more explicitly, so that the analyst can be fairly confident of dealing with different samples of speech that are in the same style, William Labov has described both channel cues and contexts which relate to or identify styles. In his book The Social Stratification of English in New York City, (Labov, 1966, pp. 90-112), he outlines a number of contexts, which have a direct bearing on the style of the informant's speech, and a number of channel cues or nonlinguistic markers within the informant's speech, which may be used to determine what style that speech has. There is a large range within which speech may be called "careful," and another large range within which it may be identified as "casual." There is also, however, a relatively narrow area within which the channel cues for one style overlap with the contexts for the other style. It is within this area that the passages of speech used for the present study fall.

The context is that of the interview situation, where the informant is answering explicit questions. For the present study, only answers to a small number of questions were used--those which

called for descriptions and/or narrations about games, pets, television shows, movies, and events in the lives of the informants. At least one of the channel cues is present in each of the passages chosen, sometimes several of them. In an effort to further reduce the likelihood of variation in style, the passages chosen are those where there is either no interruption by the interviewer, or only an interruption that seems to constitute no more than an encouragement to the informant to continue in the same vein. To get from two and one-half to five minutes of speech, a length chosen arbitrarily, it was sometimes necessary to take two or three brief passages from different places in the interview of a single informant. The passages chosen are thus in the least careful variety of "careful" styles. This was necessary because only an extremely small number of interviews from Detroit were found to contain the necessary contexts and channel cues to identify them as casual.

Some of the tapes chosen for the grammatical studies proved to lack a long uninterrupted passage of the sort described above. They were replaced with other tapes of interviews with persons from the same area, of the same race and age. In some cases it was not possible to find persons who were also of the same sex as the original informant, or who were also natives of the city of Detroit. The importance of sex in speech performance was not known at this time, but a nearly equal number of male and female speakers, seventeen and nineteen respectively, was included. A very few persons who were not natives of Detroit were also included in the hope that any divergence of these speakers from the performance of the rest of the group might suggest that the variations under study were or were not regionally

distributed.

It should be pointed out with regard to the areas into which the city was divided for sampling purposes that these do not accurately reflect social communities of the city. At the time when the sampling was done, although rather extensive sociological research has been going on in Detroit for years, there was not available even a preliminary description of the many social divisions of the city. Some of the geographical areas therefore contain more social groups than are represented by either the initial sample or the subsequent selections from the sample. Information on the exact nature of the sample is available in the reports of the Detroit Dialect Study (see page 6).

The Nasal Consonants

Phonemic analyses of English generally identify three nasal consonant phonemes, /n/, /m/, and /ŋ/. For the purposes of the present investigation, the position of the nasal consonant in the phonemic syllable is important. Charles F. Hockett, (1958, p. 99), describes the syllable system of English as the "peak" type, in which the occurrence of a phoneme of a particular class, that is, vowel, constitutes a syllable peak. The occurrence of a vowel phoneme peak within a phonological unit then defines that unit as a phonemic syllable.

In the speech of the Detroit informants, the [m] and [n] consonants appear to contrast almost invariably in syllable initial position. However, in syllable final position, an interesting variety of realizations occurs, influenced by the phonological con-

text. Instead of describing this variation as an alternation of phonemes, it is perhaps better to postulate a unit such as that referred to by Elson and Pickett, (1965, p. 39), a morphophoneme. The nasal consonant morphophoneme may be written |N| , where the vertical lines indicate morphophoneme, and the capital letter stands for nasal consonant. **(See p. 19 for definition of terms.)**

In the descriptions below, the phoneme which occurs in the syllable in focus when the word is uttered in isolation will be called the "normative" phoneme. When a non-normative phoneme is mentioned, the normative phoneme with which it is in variation will be identified by a superscript letter. For example, $/m/^{n}$ indicates an occurrence of the phoneme /m/ where the normative phoneme is /n/.

Perhaps as a consequence of the fact that the data under study here consists of larger phonological units than citation forms, one other phenomenon occurs. This is the realization of the morphophoneme |N| as nasalization of vowels and semivowels, with concurrent absence or lenis articulation of the nasal consonant phonemes. The nasalization phenomenon poses certain descriptive difficulties. On the one hand, there does not seem to be sufficient motivation for proposing nasalized vowel phonemes which contrast with oral vowel phonemes. On the other hand, the conventions of biuniqueness and linearity in traditional phonemic analysis would seem to militate against the postulation of a nasalized vowel allophone shared by all three nasal consonant phonemes.

For the purpose of describing the Detroit data, however, it seems most reasonable to choose the latter alternative, and to

propose that the three nasal consonant phonemes do share one allophone, [ṽ].[2]

Phonological Description

The following examples from the speech of the Detroit informants are intended to illustrate the kinds of phonological phenomena which seem to require the postulation of the morphophoneme |N| and nasalized vowel allophone [Ṽ], which is shared by the three nasal consonant phonemes /n/, /m/, and /ŋ/. A close phonetic transcription is used in order to avoid obscuring any facts which might be lost in a phonemicized presentation.

I. Morphophoneme

A. |N| may be realized as /n/ in syllable final position or as the first member of a consonant cluster coda when followed by alveolar stops, vowels and semivowels, pause or juncture. This conclusion is based on the following examples of phonetic occurrences:

[ɨ̂niˈkʰɛ̆ɪ̂nˈdɛɨr]	"...and he came there..."
[ˈwɨrkɪ̆̂nɨˈgoɨ̆̂ə̂ˈraʊn]	"...working, going around..."
[hizˈgə̆̂nəˈdai]	"...he's going to die..."
[ˈgɪtn̩ˈɪ̆̂ntʰu]	"...getting into..."
[ˈčr̥aɪɨ̂ntəˈfaɪ̆̂nd]	"...trying to find..."
[ˈfaɪtn̩#]	"...fighting."
[ˈlʌɪvɨ̂nˈwɪθəs]	"...living with us..."

B. |N| may be realized as /m/ in syllable final position or as the first member of a consonant cluster coda when followed by bilabial or labiodental stops, fricatives and semivowel, or when preceded by bilabial consonants or glottal stops. The following phonetic examples

illustrate the basis for this conclusion:

[ˈbækm̩ˈpʰeĩnt]	"...back and paint..."
[ˈĩmbɨˈtʰwĩn]	"...in between..."
[ˈhwɨ̃mˈwiˈyustə]	"...when we used to..."
[ˈhɛədˈkʰæ̃mfl̩ˆɪks]	"...had conflicts..."
[ˈsɛbm̩ˈθɨrtiǂ]	"...seven-thirty..."
[ˈsə̃mʔm̩ˈyuˈgat]	"...something you got..."
[ˈsə̃mθɨ̃mˈbət]	"...something but..."
[ˈtʰeɪkɨ̃mˈpɪkčɨrz]	"...taking pictures..."
[ˈwɨrkɨ̃mfɨrðɨ]	"...working for the..."

C. |N| may be realized as /ŋ/ in syllable final position or as the first member of a consonant cluster coda when followed by velar stop consonants, or when preceded by velar stop consonants. This conclusion seems warranted by the following examples in phonetic transcription:

[æ̃ŋˈgeɪvɨt]	"...and gave it..."
[ˈkʰɛpɔ̃ʊ̃ŋˈkʰə̃mĩn]	"...kept on coming..."
[ˈrɛkŋ̍ˈyuˈmæ̃ɪt]	"...reckon you might..."
[ˈsɨ̃mtʰaĩŋˈkʰarˈtʰũnz]	"...sometimes cartoons..."
[ˈə̃ygɔ̃ːˈprəˈdus]	"...I'm going to produce..."

II. Allophone

A. [ṽ] is an allophone of /n/ **when /n/ is syllable final or** is the first member of a consonant cluster coda when followed by all consonants except voiced stops, all vowels, and pause or juncture. This conclusion is illustrated by the following examples, which would probably contain the allophone [n] in the citation forms of the units

shown in phonetic transcription:

[ˈʔæĩˈstartɨd]	"...and he started..."
[ˈmɛ̃ə̃frɨ̃mˈə̃ŋkɨlˠ]	"...Man from Uncle..."
[ˈkʰə̃mˈdãʊ̃‖]	"...come down,..."
[ʔæ̃ə̃ˈhwɨn]	"...and when..."
[ʔæ̃ə̃ˈwãnts]	"...and wants..."
[ɪ̃ĩˈʃutsɪ̃m]	"...and he shoots him..."
[ˈtʰɨ̃ɹ̃zəˈrãʊ̃ɨ̃ˈsizɨ̃m]	"...turns around and sees him..."
[ˈtʰɨ̃ɹ̃zəˈrãʊ̃tʰu]	"...turns around to..."
[ˈɛ̃yɨˈgoʊ]	"...and you go..."
[ˈkʰæpčɨrʔˈwə̃ #]	"...captured one."
[ˈhwɨ̃ˈaɪˈsɔɨt]	"...when I saw it..."

B. [ṽ] is an allophone of /m/ in syllable final position or as the first member of a consonant cluster coda when followed by juncture, [a] , [w] , [h] , [š] , [z] , and [d] .[3] The following examples would contain the allophone [m] in citation forms:

[ˈtʰolˠɨ̃ˈdɪdi]	"...told him did he..."
[ˈkʰə̃zˈɪə̃n]	"...comes in..."
[ˈtʰaɪ̃wiˈpʰʊt]	"...time we put..."
[ˈtʰovlˠɪ̃ˈhiwɨz]	"...told him he was..."
[ˈsčrɛčʰɪ̃nɪ̃‖]	"...stretching him..."
[bʊ̃ː#]	"Boom!"
[ˈɛvrɪˈtʰæˈšiˈkʰə̃m]	"...every time she comes..."
[ˈwə̃ntãːɨzˈgəɪ̃ŋ]	"...one time I was going..."

C. [ṽ] is an allophone of /ŋ / in syllable final position or as the first member of a consonant cluster coda when followed by all consonants except voiced stops, all vowels, and pause or juncture.

The following examples in citation form would contain the allophone [ŋ]:

[ˈʔæ̃niˈθɪ̃ˈhiwɨz]	"...anything he was..."
[ˈpʰeɪ̃ntɪ̃ə̃vð̃ɨ]	"...painting of the..."
[ˈwɨrkʰ̃iˈɲ̃nɨt]	"...working on it..."
[ˈfaɪtɪ̃ˈwɪθð̃ɨ̃m]	"...fighting with them..."
[ˈargyuɨ̃fɨrˈsə̃m]	"...arguing for some..."
[ˈsə̃mθɪ̃yˈrɔʊ̃#]	"...something wrong."
[ˈmarkɪ̃ˈaiˈgat]	"...marking I got..."
[ˈmeɪkɪ̃ˈsə̃m]	"...making some..."
[ˈsə̃mθɨ̃ˈlʌaɪkə]	"...something like a..."
[ˈlʌʊkɨ̃ˈsl̃ʌpʰi#]	"...looking sloppy."
[ˈkə̃mɨ̃ˈæftɨrɨ̃m]	"...coming after him..."
[ˈrə̃ɨ̃ˈraʊ̃n]	"...running around..."

The interesting phonetic occurrences described above are, then, instances of what has been called "free variation." In his article "Social Influences on the Choice of a Linguistic Variant," John L. Fischer (1958, reprinted in Hymes, 1964, p. 483) notes:

> 'Free variation' is of course a label, not an explanation. It does not tell us where the variants came from nor why the speakers use them in differing proportions, but is rather a way of excluding such questions from the scope of immediate inquiry.

The social parameter is one of several along which language data is stratified. Fischer's article, published nearly ten years ago, noted that linguistic investigation of the social type of variation had not very often been undertaken, (p. 486):

> The study of social factors in linguistic drift is in the field of the sociology of language rather than linguistics proper. However, this study can not reach ultimate fruition

> without certain linguistic studies by competent linguists. I refer here to studies of individual variations in linguistic forms in small, face-to-face speech communities, and of variations in these forms in the speech of single individuals in a range of social situations. Studies of this sort constitute tasks of respectable magnitude which have, in the main, been neglected. . . . A linguist as such would not wish to analyze these social factors in great detail. But it would be well within the scope of linguistics to identify individual informants in a unitary speech community by name or code number and group them according to their similarity or dissimilarity in the use of variants in some standard situation, say, in conversation with the linguist.

The present research has been an effort to perform just such an investigation as that outlined in the quotation above.

Preliminary Techniques

Standard orthography is a sufficiently accurate key to English nasal consonant phonemes so that the selected passages could be typed as a reference for the analysis. The nasal consonants were then marked, (see sample typescript, Appendix III, pp.62-65), and the phoneme or allophone which was present on the tape was indicated. For further comparability, the passages were then timed with a stop-watch and divided into minutes, with long silences and interruptions excluded. No significance is intended to be attached to the simple number of occurrences per minute of each of the nasal consonants, since uncontrollable semantic, syntactic, and contextual variables apply. In other words, this study is not a straightforward nasal consonant frequency count, similar to the American English phonemes done by Rebecca E. Hayden, (1950, pp. 217-23). A range of from two minutes and twenty seconds to seven minutes and seven seconds was measured, though it should be noted that the latter was very unusual.

The next longest passage is only four minutes and seventeen seconds.

The potential nasal consonants, (where either normative or alternate realizations were expected), were then marked on the typed page and counted. The totals were listed on a separate sheet in columns by minute, so that the final row might represent as little as three seconds of actual time.

The count was aided by the fact that English orthography contains very little ambiguity in its representation of nasal consonants. That is, an /m/ is invariably represented by the graph "m"; an /n/ is invariably represented by the graph "n"; and an /ŋ/ is nearly always represented by the graphs "ng". Where /ŋ/ is represented by graphic "n", it is invariably followed by one of the several graphs or graphic sequences which represent the velar stop consonants in English.

With the nasal consonants marked on the typed sheet and counted, the next step was to describe the distribution of the morphophonemic variants and the nasalized vowel allophone.[4]

[4] As it is used in this work, morphophoneme means the class of syllable final nasal consonants which is made up of the morphophonemes |m|, |n|, and |ŋ|, each of which may be realized as the phonemes /m/, /n/, or /ŋ/. The nasalized vowel allophone varies with the phonemes listed above when those phonemes in the citation forms of the examples occur in the given environments.

CHAPTER II

ANALYSIS

Distribution in Higher Level Units

Once the nasal consonants had been identified and tabulated, those occurrences were examined where the realized phoneme was not the normative phoneme. If the variations could be accounted for by some feature of the suprasegmental phonemic system, or by some relation to the grammatical pattern of the language, then their occurrences might not be indices of social level in themselves. Rather the variations might be a secondary consequence of the existence of differences in grammatical structure in different social dialects.

Consequently, several tapes were chosen which represented the top, bottom, and center of the social level scale. In each of these tapes those consonants which had been marked as realized by a nasalized vowel allophone, that is, where closure for the nasal consonant was not made, were examined. An effort was made to determine whether the syllable in which they occurred, in both phonological word and sentence or clause, was the one which bore the stress or not. Furthermore, the consonant was examined to see whether it was syllable initial or final. And finally, it seemed reasonable to classify English grammatical units in some way, and

determine whether the distribution of the nasalized vowel allophone, (henceforth abbreviated: [$\tilde{V}$]), was in some significant way correlated with the grammatical level of the language. The classification by Charles Carpenter Fries of English words into function words, nouns, verbs, and adjectives was used, (1945, pp. 44-50).

It was found that in all of the tapes examined (Figure 1 page 22), the [$\tilde{V}$] occurred almost exclusively in syllable final position.

In a very small number of cases in the total sample, the [$\tilde{V}$] was the realization of a nasal consonant which could not definitely be assigned to either the preceding or following syllable. These were instances of what Charles F. Hockett calls "interludes," (1955, p. 52). In a few other cases the [$\tilde{V}$] occurred in a "set phrase" or "filler," a phonological unit which is devoid of lexical meaning, and seems to constitute no more than continued voicing in the speaker's effort to avoid falling silent. Most frequent of the set phrases was "you know." These few instances of syllable initial or doubtful [$\tilde{V}$] were considered insufficient evidence to support the hypothesis that they may occur syllable initially.

(In Figure 1, and thereafter, the smaller social level numbers represent upper social levels, the larger numbers, lower social levels.)

The nasalized vowel allophone occurred both with and without word stress, but much more often in the former case.[5] It occurred in syllables both with and without clause stress, but more often without. And it occurred in units which belong to all four of the form classes of Fries. It occurred most often in function words, less often in nouns, still less often in verbs, and seldom in adjectives.

Figure 1. [ṽ] distribution in higher level units

Social Number	Syllable Initial	Syllable Final	Word Stress	No Word Stress	Clause Stress	No Clause Stress	Function Words	Noun	Verb	Adjective	Overall Percentage of [ṽ]
20	0	9	8	1	1	8	7	1	1	0	4.1
63	0	10	9	1	1	9	7	1	1	1	4.2
81	0	6	6	0	0	6	6	0	0	0	2.5
87	1	44	31	14	3	42	16	18	10	1	20.8
103	0	48	29	19	10	38	22	19	7	0	22.7
134	1	33	27	10	10	27	19	10	6	2	15.4

Since many phones in English tend to be voiceless, lenis, or even omitted in syllable final position, it is not surprising that the nasal consonant is often missing here. Neither is it surprising that in syllables which do not bear clause stress the nasal consonant should be more frequently missing. Since most of the phonological words in which there occurred a [$\tilde{V}$] were of only one syllable, it is not particularly revealing that most of the words where nasalization occurred bore word stress. Finally, the occurrence of the [$\tilde{V}$] in the various form classes seems to reflect either a fact about the relative frequency of each of these types, (because most of the occurrences are in the kind of word which occurs most often), or a fact about whether or not they bear stress at the word or clause level. Furthermore, the ratio of occurrences in the various positions did not seem to vary importantly from speaker to speaker, but seemed to correlate rather well with the overall percentage of [$\tilde{V}$].

The foregoing remarks seem to lead to one of two conclusions. Either a much more sophisticated and exhaustive investigation is needed to show the relationships of the nasal consonants to higher level phonological units and the grammatical hierarchy, or the investigation of nasal consonant phenomena within no larger units than syllables is sufficient to show their correlation with non-linguistic facts about the speakers. Consequently, it was decided that a straightforward percentage of the potential phonological inventory of nasal consonant segments which were realized by either a [$\tilde{V}$] or by a non-normative phoneme would be most useful.

The realization of the [$\tilde{V}$] should be understood to consist of two kinds of phenomena. It includes those instances of nasalization

where the normative phoneme is intervocalic. And it also includes those instances where the normative phoneme is followed by a homorganic stop, fricative, or affricate consonant. The latter may perhaps best be called lenis articulation or absence, since in such cases it is not possible, using the ear alone, to make sufficiently precise measurement of the segment to say that it is or is not definitely present.

Finally, it must be remembered that the realizations of phonemes other than the normative forms never, or almost never, occur syllable initially. However, the counts and percentages below include both syllable initial and syllable final positions. Consequently, it is not necessary to attempt to resolve the problem posed by interludes. Unless there is a significant difference between speakers in the ratio of syllable final to syllable initial occurrences, which seems highly unlikely, the inclusion of both will not distort the examination of the data.

Nasalization

After compiling the figures representing the percentages of potential nasal consonants realized as nasalization of contiguous vowels, a first attempt was made to correlate the informants' performance with their social level numbers. Figure 2, (page 25) illustrates the results. It is difficult to see anything more than a general rise in the percentage of occurrence of this allophone as the social level descends, when the figures are simply listed in tabular form.

Figure 2. Social distribution of non-normative phonemes and [ṽ]

Social Number	Percentage of [ṽ]	Percentage of Non-normative Phonemes and [ṽ]
20	4.1	9.7
37	2.9	3.4
41	9.4	9.4
54	2.1	3.3
59	.6	1.3
59	6.2	7.5
60	10.8	13.4
63	4.2	8.4
65	7.2	14.4
71	2.9	9.7
74	5.7	9.7
74	7.3	15.1
74	7.4	9.7
77	11.4	15.9
78	16.8	23.9
80	12.0	16.9
81	2.5	6.2
87	20.8	29.6
92	11.5	18.6
97	10.9	17.1
97	12.4	16.4
98	17.9	25.9
99	4.3	5.4
99	6.9	8.9
100	17.6	25.5
102	25.9	33.3
103	11.8	19.9
103	22.7	28.4
104	.65	1.9
108	19.3	24.4
108	10.0	13.6
109	13.2	21.0
109	13.3	16.0
112	8.1	15.4
113	12.5	16.6
134	15.4	27.5

One interesting fact is immediately obvious, however; that is, that there is no informant at any social level whose speech performance does not contain at least some instance of the realization of nasal consonants as nasalization of contiguous vowels. The $[\tilde{V}]$ is therefore not a social index which operates in terms of simple presence or absence in speech. It is instead necessary to compare percentages of nasalization at the various social levels.

In Figure 2 (p. 25) are also shown the figures for percentage of realization of all phonemes other than the normative added to the percentage of $[\tilde{V}]$. With few exceptions, these figures seem to be no more than a slightly higher number.

There are four informants whose percentages of both phenomena seem to be very much lower than those of other persons at nearby social levels. Although there is some danger in any research project in attempting to explain those facts which do not seem to fit the pattern, it was felt that perhaps some non-linguistic data could suggest reasons for the extreme divergences of these four informants.

The informants at social levels 81 and 104 are both children whose parents had recently moved to Detroit. In one case, the head of the household was working on the assembly line at an automobile factory, though at one time in his life, he had been a teacher. It seems reasonable to suggest, then, that the social level numbers may not accurately determine the real position in Detroit society for these two families. These families may not have lived in Detroit long enough to have found their proper position in residence and occupation.

Of the two informants at social level 99, one is a white girl, the other a negro girl. The white girl lives in a part of the city where the white residents seem generally either to have speech patterns very like those of the negroes, or to have extremely precise articulation, in an apparent effort to emphasize their difference from the negroes.

The negro girl has a special physical difficulty which could quite conceivably affect the nasal aspects of her speech. A short time before the interview, her nose had been badly injured in an accident.

Those who do not seem to fit in the apparent pattern of percentages of non-normative occurrences thus have in each case some reasonable non-linguistic data which suggests why they fail to fit. This fact is indicative of the level of confidence which apparently can be placed in the social stratification charts for these phenomena.

Since it is difficult to make significant generalizations on the basis of data in tabular form, the percentages were next transferred to a line graph, which appears in Figure 3 (p. 28). Social level numbers run from left to right on the bottom line of the graph, while percentages of [ṽ] from about .6% to 26% are represented vertically.

The general trend from low percentages at the upper social levels to high percentages at the lower social levels is still the most obvious fact about the data. The four informants who do not fit the general pattern well are the most outstanding divergences from this line. And when the line indicating the social level median is drawn in, it can be seen that the shift from generally low

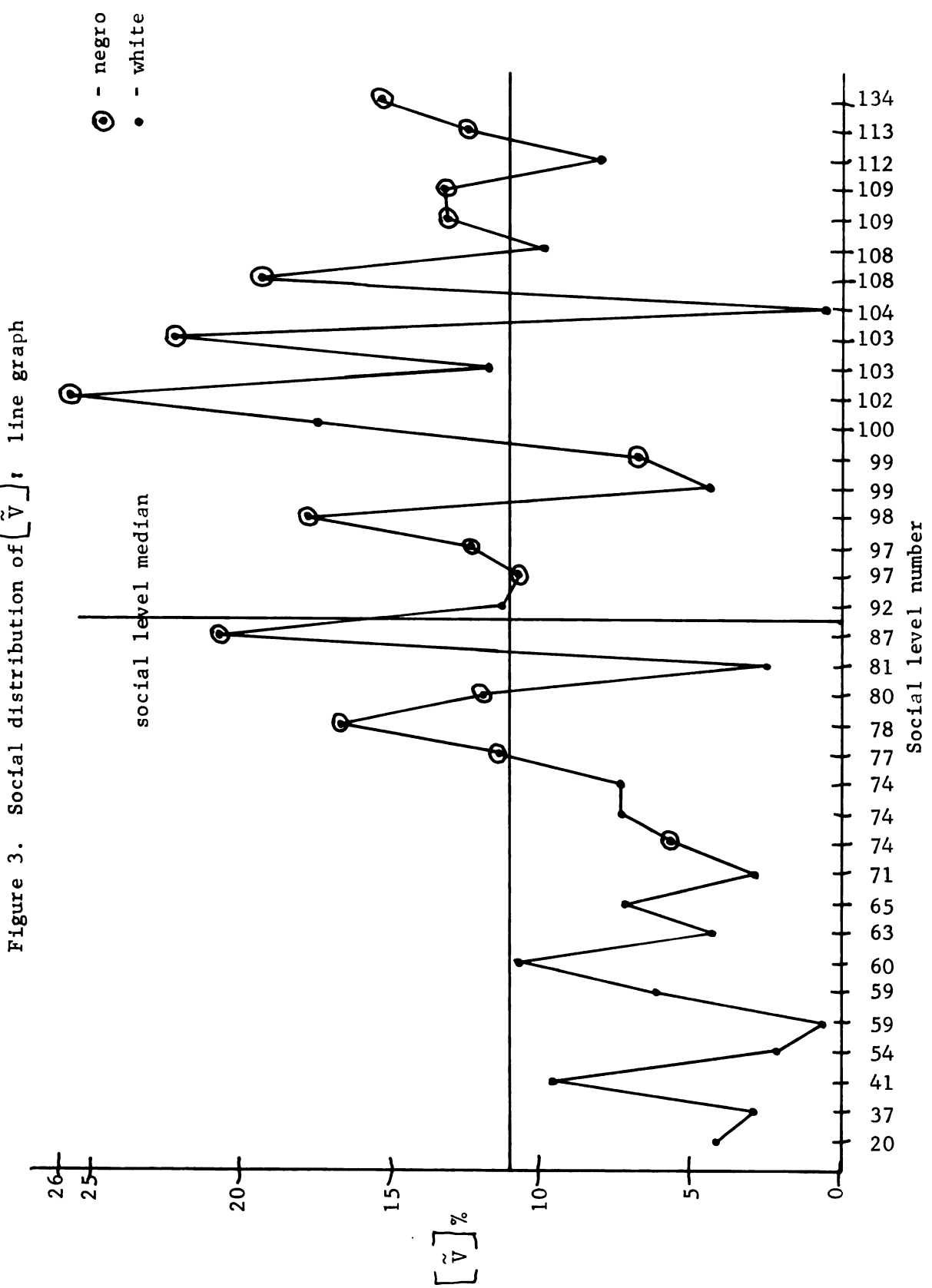


Figure 3. Social distribution of $[\tilde{v}]$: line graph

percentages to generally high percentages occurs very near the median.

From the range of non-linguistic data available one feature which could be checked as a potential stratifier of the sample was race. And it does seem to be true that the nasalization phenomenon is commoner among the negro informants in this study than among the whites.

This is not to say, however, that the [ṽ] is a feature of "negro speech." It is rather to say that the phenomenon is basically stratified by social level, but that in our society there are more negroes than whites at the lower social levels. Negroes in the United States may be said to have generally less education, lower income, less prestigious jobs, and more crowded and dilapidated dwellings than whites. Since these are the factors used to establish social level numbers for the Detroit informants, it is not surprising that there are more negroes than whites in the lower social levels of the sample.

Here and elsewhere in this research, then, the comparison of negro and white informants is not intended to show that there is a "negro dialect." Instead it should be understood as a reflection of the fact that even within given social level groups, there are at least two identifiable speech communities, possibly better called ethnic groups. One of these groups is made up <u>primarily</u> of white persons, while the other group is <u>mostly</u> negro.

One good reason for postulating speech communities which are not exclusively racial is that at least one white informant in the present sample, and several of the negro informants, exhibit language behavior which would tend to identify them as members of the group which is made up predominantly of persons of the other race.

Informant number 216, for example, who is a white female, has those features in her speech which are characteristic of the predominantly negro community.

The social level mean for this group of informants is 84.5. Only four persons of the seventeen in the sample above this level are negroes. To show that the [ṽ] is a feature more common in the negro speech community than in the white speech community, it would be necessary to divide the sample into different social groups which contain members of both communities. If there is then found to be a contrast in each level between negroes and whites in percentages of [ṽ], it may be legitimately postulated that the [ṽ] is a characteristic of the negro speech community.

With a total sample population of only thirty-six informants, including members of two ethnic communities, it does not seem feasible to divide them into more than four social groups. In fact, when such a division is made there are no negro informants in the upper quartile. Figure 4 (p. 31) illustrates the mean percentage of [ṽ] for whites and negroes of each of the four quartiles. The population represented by each column is indicated below it in parentheses.

The first quartile contains no negroes, and is thus not relevant for the purpose of this check. Though there is only a relatively small difference in the third quartile between the ethnic groups, there is a wide difference in the second and fourth quartiles. This fact suggests the hypothesis that the [ṽ] is not only a feature of speech which is stratified socially, but also a feature which indicates a difference between ethnic speech communities.

Figure 4. Social distribution of $[\tilde{V}]$ in sample quartiles by ethnic community

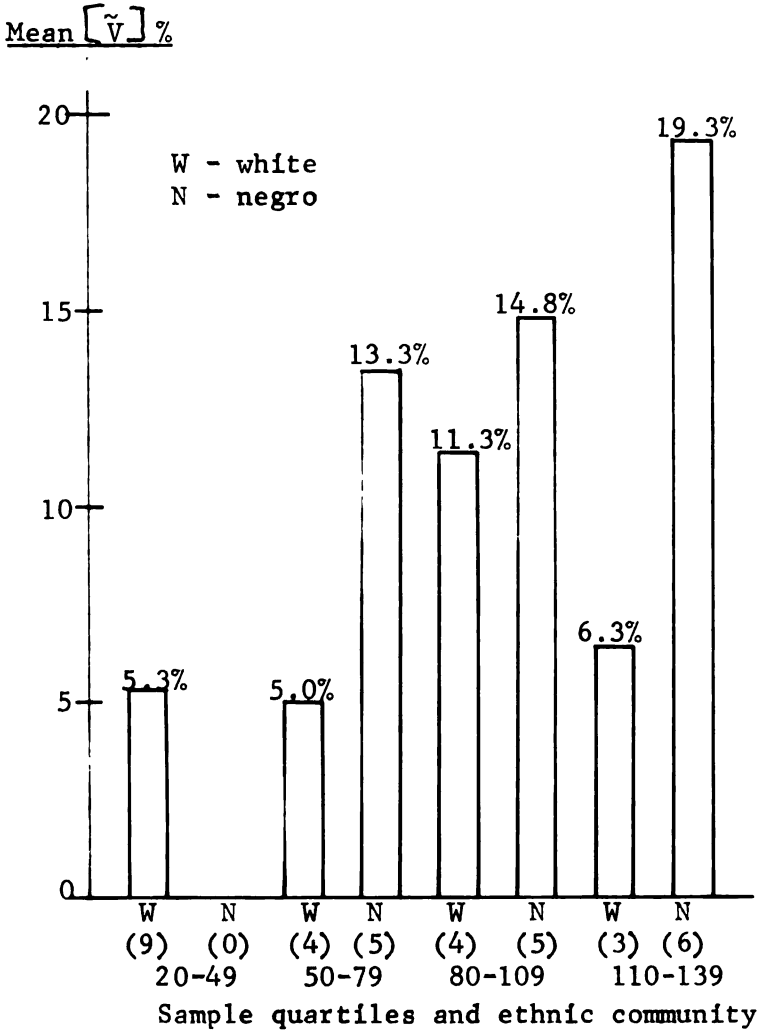
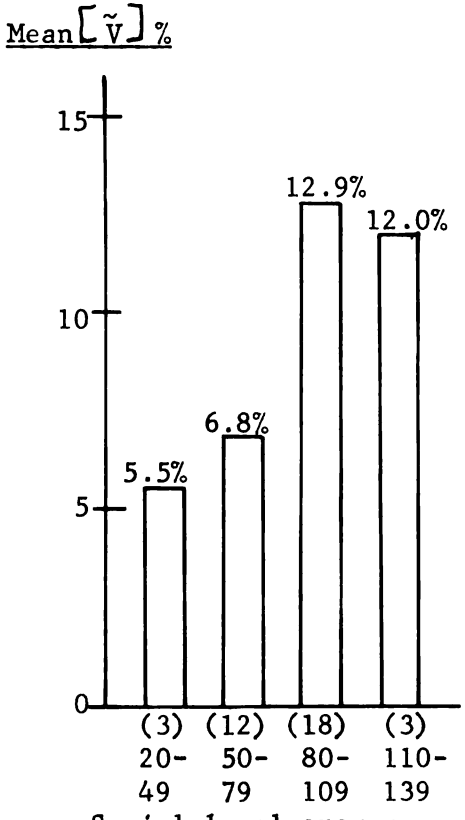


Figure 5. Social distribution of $[\tilde{V}]$ in social level quartiles



The peaks and valleys of the line graph make it difficult to determine how many social groups can be said to stratify on the basis of the $[\tilde{V}]$. Consequently, the social level numbers were arbitrarily divided into four groups of thirty points each. The mean percentages of $[\tilde{V}]$ were then plotted for the population within each of the four social divisions. The results are shown in Figure 4 (p. 31). A definite contrast can be seen between those informants above the level of number 80 and those below it. However, there seems to be no natural division between the two upper groups; nor is there such a division between the two lower groups.

On the basis of this fact it was felt that the $[\tilde{V}]$ stratifies the sample socially into no more than two groups, upper social level and lower social level. In the illustrations below, the performance of the group as a whole will be shown, then contrasting figures for those above the median social level (89.5) and those below the median.

Distribution of the $[\tilde{V}]$

In the preceding pages it has been demonstrated that several ways of displaying the relationships between the linguistic and the non-linguistic data are possible. Each kind of display shows something of interest, but one seems to be more useful than the others for abstracting generalizations from the data. This most useful one is the bar graph, which will be used most frequently below. In the history of this research project, however, all three kinds of display have been made and compared with each other in testing each of the hypotheses about the distribution of the $[\tilde{V}]$. Occasionally another kind of graph or table which seems to have revealed some striking fact

about the data will be included also.

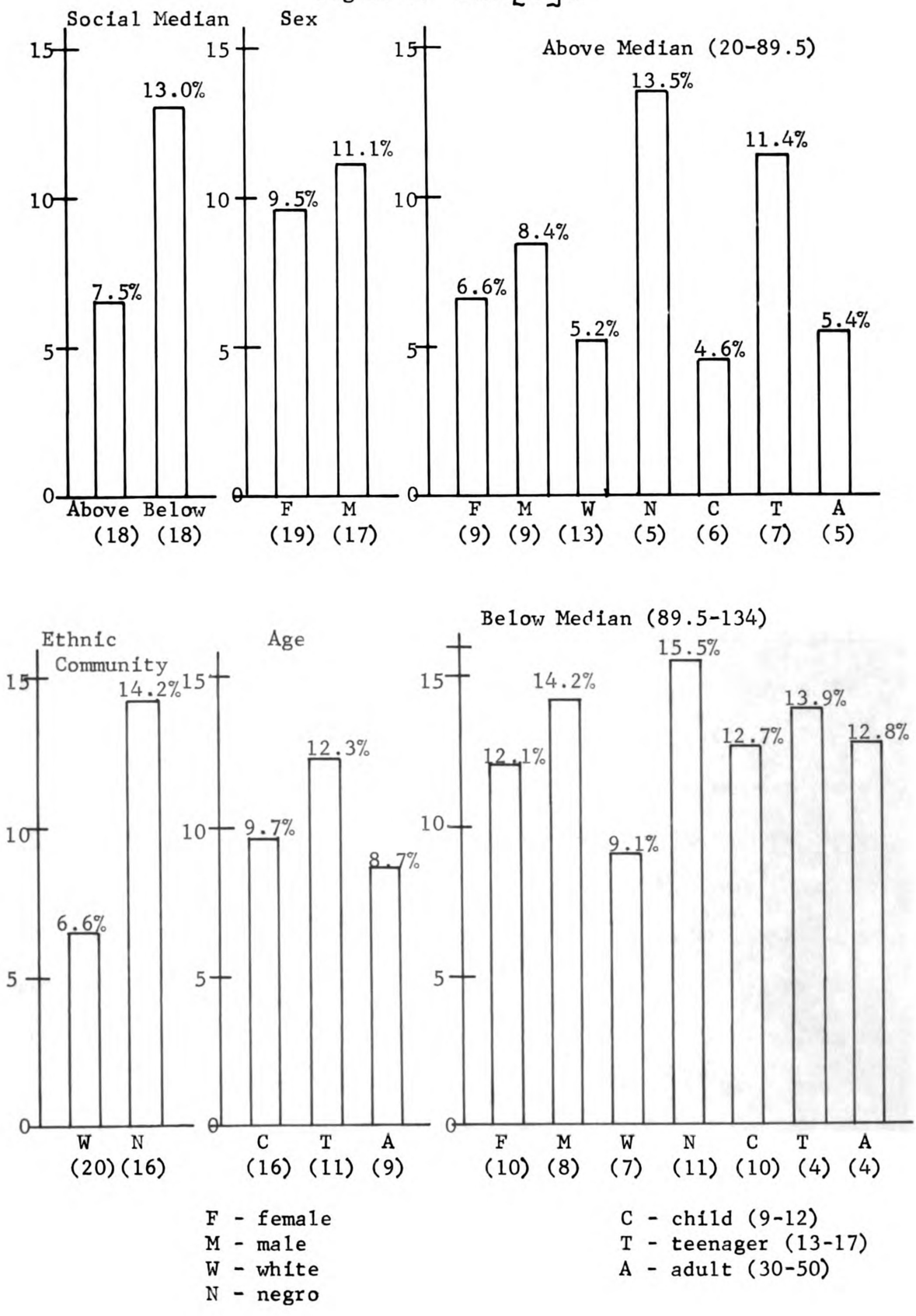
That the mean percentage of [ṽ] stratifies socially into no more than two groups has been shown above in Figure 5 (p. 31). The sample was therefore divided at the social level median (89.5), and percentages displayed for the total sample, and for those above and below the median.

Four different hypotheses were tested for the [ṽ]: (1) the percentage of occurrence is distributed socially, with a difference between those above and those below the social level median; (2) it is distributed differently according to sex; (3) it is distributed differently according to ethnic community; and (4) it is distributed differently according to age.

In Figure 6 (p. 34) the results of the testing of these four hypotheses are shown. The percentage of occurrence of the [ṽ] in the group of informants below the social level median is nearly twice that of informants above the median. This fact would seem to support the first hypothesis, that the [ṽ] stratifies socially.

There is a slightly greater percentage of occurrence of the [ṽ] for males than there is for females. However, the difference is not as great as that which appears between the upper and lower social levels. In the separate figures for the upper and lower social groups, the same kind of small difference between males and females is seen. The lower level males and females differ from each other slightly, but considered together, they differ more from the upper level males and females. Consequently, there is some doubt that the difference between males and females is great enough to consider the second hypothesis as likely as the first.

Figure 6: Mean $[\tilde{V}]$ %



F - female
M - male
W - white
N - negro

C - child (9-12)
T - teenager (13-17)
A - adult (30-50)

In the speech of the group as a whole, the [ṽ] occurs much more often in the speech of negroes than it does in the speech of whites. There is still a wide difference between the ethnic communities when the sample is split into two groups at the median social level. This suggests that the percentage of occurrence of the [ṽ] is an important feature of the difference between the phonological structures of the two ethnic speech communities, as well as a feature of the different social levels.

It should be remembered, however, that above the social level median there are only five negroes, but thirteen whites. Below the social level median there are seven whites and eleven negroes, a more comparable distribution. Here there is still a difference between the two ethnic speech communities. And it was shown before (Figure 4, p. 31) that in the three sample quartiles which contain both negroes and whites, there is always a difference in performance between the two ethnic speech communities.

The figures for children and adults are generally very close to the same, both for the total sample and for the informants above and below the social level median. The teenagers, however, show an interesting and suggestive difference. For the total sample, the percentage of occurrence of the [ṽ] in the speech of teenagers is just a little greater than that for either children or adults. In the socially divided sample, the teenagers evidence [ṽ] below the social level median in very much the same way as adults and children. But in the group of informants above the social level median, the percentages for teenagers are outstandingly different from those for adults and children, that is, much higher.

It seems quite reasonable to propose that this difference in the speech of teenagers and all persons of other age groups above the social level median may reflect in some way the general effort by teenagers to assert their independence. One way in which they show themselves to be different from their younger siblings and from their elders is by speaking differently. (In this case, it may be that $[\tilde{V}]$ is a part of the larger system of lenis articulation sometimes inveighed against by school teachers under the name of "sloppy speech"), (Shuy, 1965, p. 95).

What is not clear at this point is why there is not the same wide difference between teenagers and other age groups below the median social level as above it.

Having seen the difference between the ethnic speech communities in percentage of occurrence of $[\tilde{V}]$ it may be asked whether the above facts about the performance of upper level teenagers do not reflect some uneven distribution of the ethnic groups. In fact, however, there are in the teenager column above the social level median three white informants and four negroes. It is felt, then, that the difference between the teenagers and others is a genuine reflection of an age gradation, rather than a confusion with some other form of grading present in the data.

Distribution of Non-Normative Phonemes

It has already been noted that any one of the three phonemes or the $[\tilde{V}]$, may be realized in syllable final position. Whether the realization is generally the normative phoneme or one of the other three possibilities seems to depend partly on phonological context.

There is reason to believe, however, that which phoneme is realized also depends on the social level and other non-linguistic attributes of the informant.

To show how the phonemes are distributed by social level, Figure 7 (p. 38) was constructed. The twelve possible realizations are listed vertically on the left, ordered according to the number of informants in the sample who evidence them in the passages examined. The social level numbers are listed below the chart from high level on the left to lower levels on the right. No information on frequency of occurrence is shown, since a single instance of any of the elements is considered to indicate that the informant has it in his speech.

It can be seen that in a very general way the number of different realizations in the informant's speech increases as the social level descends. Arbitrary divisions might be made, for example, at 59-60 and 99-100. When this is done, informants of level 59 and above have five or six of the twelve possibilities; informants between levels 60 and 99 <u>generally</u> have about eight or nine of the twelve possible realizations; and informants at levels 100 or below have <u>usually</u> nine or ten of the twelve possibilities.

The pattern displayed in Figure 7 suggests that the speech of informants in the lower social levels may be characterized by a generally stronger context sensitivity in the nasal consonants than is found in the speech of upper social level informants. In order to test this hypothesis, it was necessary to plot the percentages of non-normative occurrences on graphs like the ones made for the $[\tilde{V}]$ alone. That information appears in Figures 8 and 9 (pp. 39 and 40).

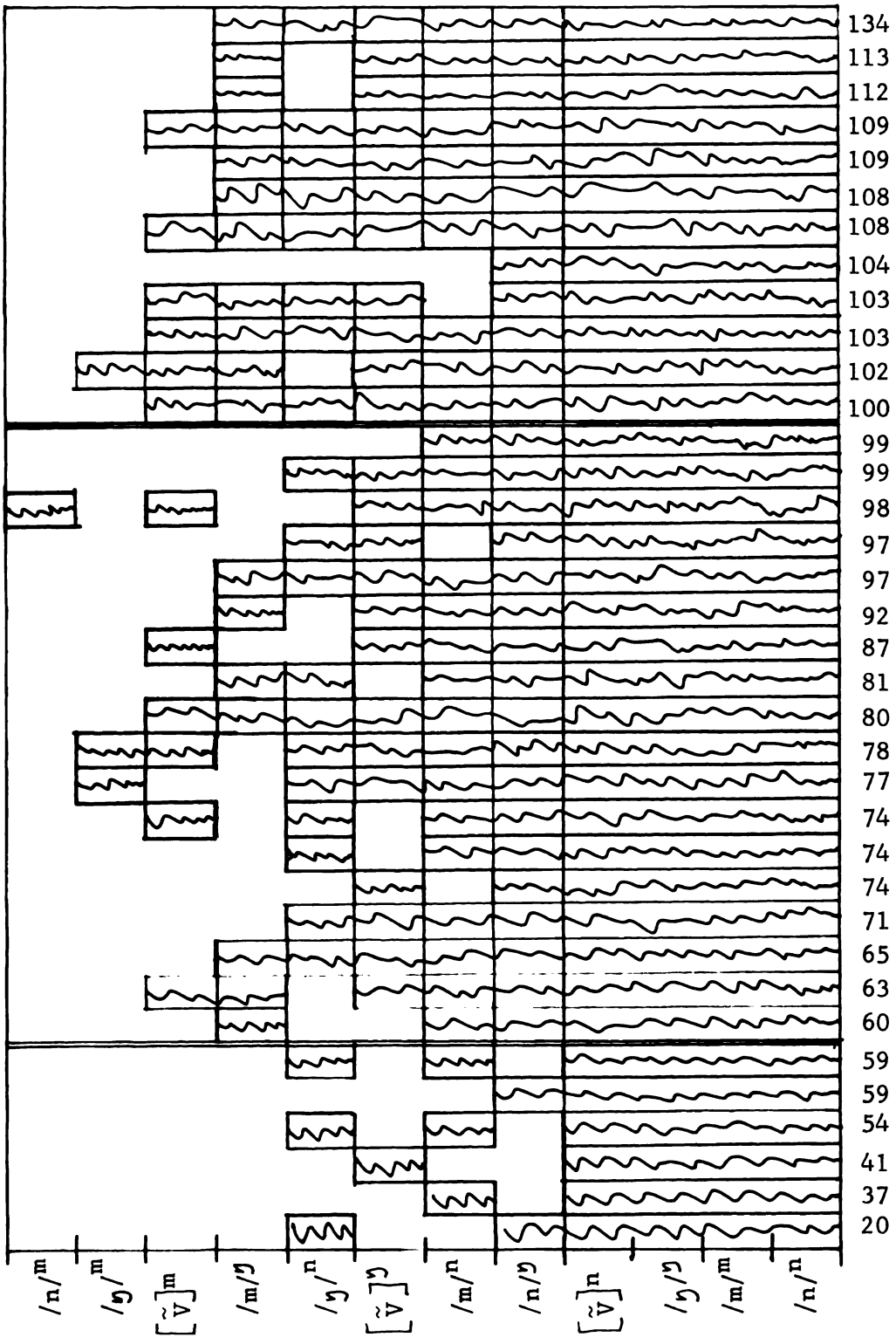
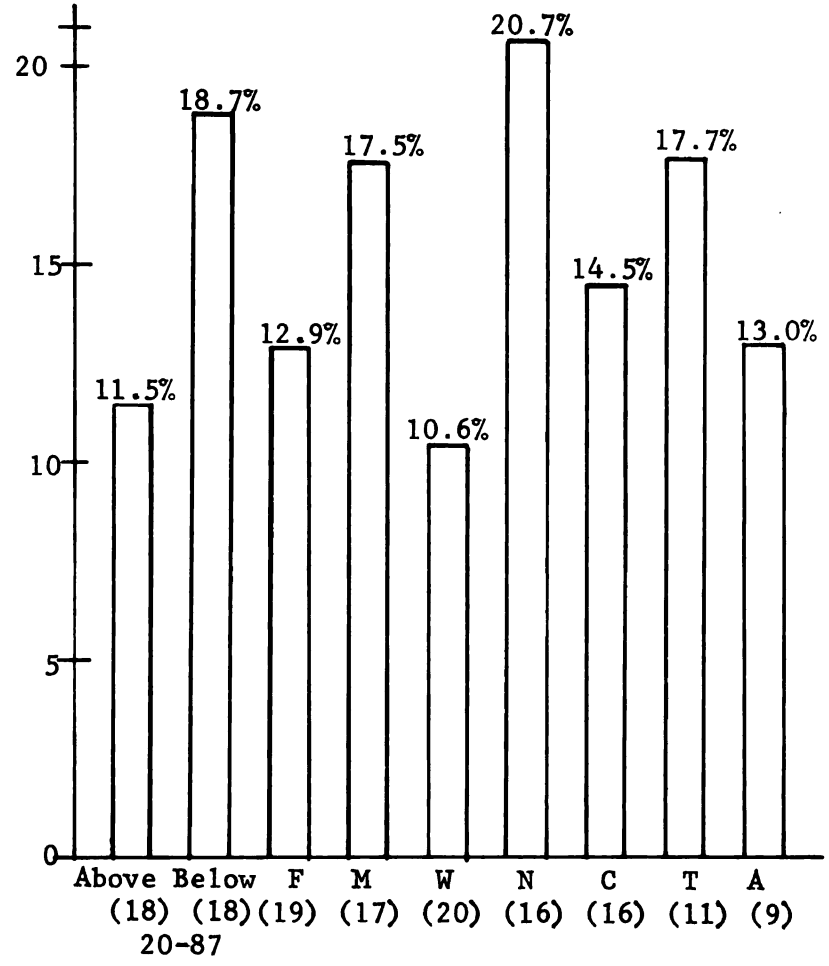


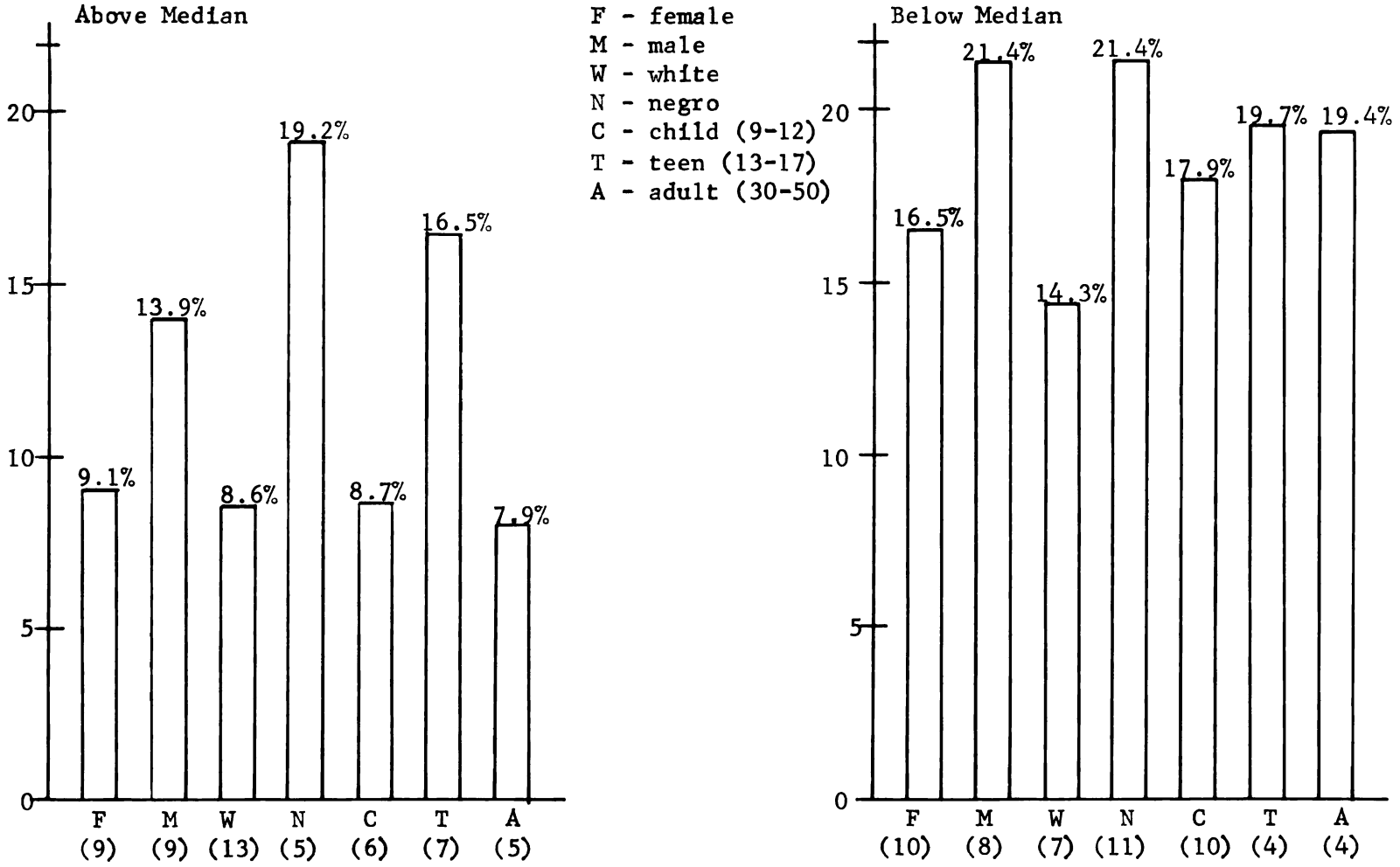
Figure 7: Phonemes and [ṽ] by speaker

Figure 8: Non-normative phoneme and [ṽ] %: total sample



F - female
M - male
W - white
N - negro
C - child (9-12)
T - teenager (13-17)
A - adult (30-50)

Figure 9: Non-normative phoneme and [ṽ] %: above and below social median



It should be noted that [ṽ] is one of the non-normative elements, and as such is included in the percentages plotted for Figures 8 and 9. These percentages seem to differ from those plotted for [ṽ] in Figure 6, (p. 34) only in that they are slightly higher. There is still considerable difference between the informants above the social level median and those below it. There is a large difference between informants of the two ethnic communities, both for the total sample and for divisions above and below the median. It must be remembered, however, that inferences drawn from the graphs about the differences between the ethnic speech communities may be misleading because of the unequal distribution of those communities in the various social levels. The difference between age groups seems to be important above the social level median, where the teenagers, as mentioned before with regard to [ṽ], are sharply different in their performance from both adults and children.

The addition of the non-normative phonemes to the figures for [ṽ] causes an increase in the difference between the figures for males and those for females both for the total sample and for the divisions above and below the median. The number of males and females in each of the graphs is close enough to the same that there may be indication of an important correlation of percentage of non-normative phoneme and [ṽ] realization with sex. Perhaps a considerably larger sample would show this difference more clearly.

Social Perception

In a recent article describing his work in New York City, (Shuy, 1965, pp. 77-103), William Labov proposes that the perception

of socially conditioned variation in speech does not begin until a particular age is reached.

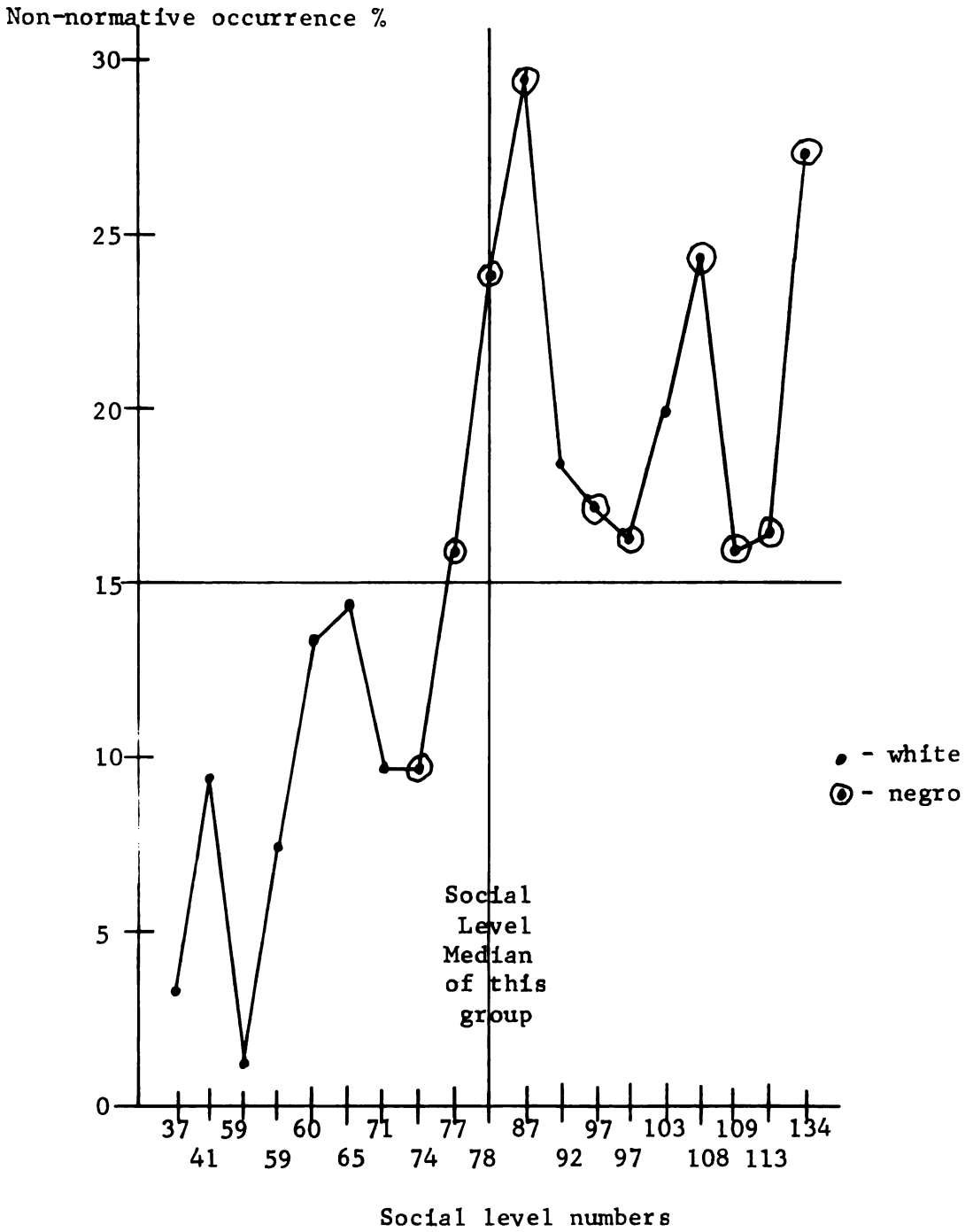
> The third stage [of acquisition of English] begins with early adolescence, as the child begins to come into wider contact with the adult world. The social significance of the dialect characteristics of his friends becomes gradually apparent to him as he becomes exposed to other speech forms, even while he himself is still confined to the single style of his own vernacular. At the age of fourteen or fifteen children begin to respond to the subjective reaction test with patterns that resemble the adult pattern.

To test this hypothesis, that is, that social stratification of language data may be more clearly structured in persons older than 13, another graph was prepared. The results are shown in Figure 10 (p. 43). In this figure, the social level numbers of persons from age 13 upward are shown running horizontally from upper on the left to lower on the right. Their percentages of non-normative phoneme and [$\tilde{V}$] realization are plotted vertically, from about 1.3% to 29.6%. It should be noted that the removal from the graph of informants below the age of 13 eliminates all four of the extreme deviants from the general trend who were discussed above (pages 26 and 27).

If an arbitrary division is again made at about the 15% level, there is only one negro informant below it, and only two white informants above it. There is a very clear division of the line into two segments, those on the lower left, and those on the upper right. The social level median of this group is 78, and the sharp division between upper social level and lower falls very near it.

There are, however, generally still the same kinds of peaks and valleys that were seen on the graphs which included informants

Figure 10: Non-normative phoneme and [ṽ] %: 13 years and older



below age 13. The sample is relatively small, yet almost half are below the age of 13. If Labov's hypothesis is to be considered valid, then, much wider deviations from the general upward trend of the line graph might be expected when the informants below age 13 are included. Of course, the measurements in the present study are based entirely on an examination of speech performance, while Labov's hypothesis is made on the basis of subjective reaction tests. At best, then, Figure 10 has shown results which may only be considered inconclusive. Further investigation is needed to test the hypothesis that social stratification in language does not begin until the age of fourteen or fifteen.

Conscious vs. Unconscious Indices

In his article "Social Dialect and Language History," (Hymes, 1964, pp. 469-72), William Bright discusses the possibility of distinguishing between conscious and unconscious variations in language. The kinds of morphophonemic and allophonic variation which have been described so far seem to be instances of unconscious variation. They may be seen as a part of a larger system of morphophonemic and allophonic variation in syllable final positions. The larger system includes variations in the realization of stops and fricatives, as well as nasal consonants, all of which variations would seem to be socially conditioned. These variations are unconscious phonetic differences between social levels, because they have not acquired the explicitly negative social value that is accorded to such consciously controlled phenomena as the "double negative," which has been attacked in the public schools for years.

Bright, (p. 471), offers a tentative explanation for the fact that unconscious variations seem to occur more often in the speech of those at lower social levels than in the speech of the upper social level person.

> In general, the Brahmin dialect seems to show great innovation on the more conscious levels of linguistic change--those of borrowing and semantic extension--while the non-Brahmin dialect shows great innovation in the less conscious types of change--those involving phonemic and morphological replacements.
> . . . . . .
> A possible hypothesis is that literacy, most common among Brahmins, has acted as a brake on change in their dialect--that the 'frozen' phonology and grammar of the literary language have served to retard change in Brahmin speech.

Among the Detroit informants there is not the straightforward division between "literate" and "illiterate" which Bright found in his research. Rather there may be degrees of literacy along a continuum. If it is assumed that there is a general direct correspondence between social level and degree of literacy, a greater variation in phonetic behavior may be expected at the lower social levels than exists in the upper levels. What has been seen in the Detroit data above would seem to offer support for this hypothesis in American English.

It seems reasonable to extrapolate from Bright's remarks above that there is also a continuum from conscious to unconscious. If this is so, it might be proposed that a "more conscious" linguistic index of social level would exhibit a closer correlation with social level than a "less conscious" index. Since such a "more conscious" index exists among the nasal consonants of English, it was decided to test this hypothesis.

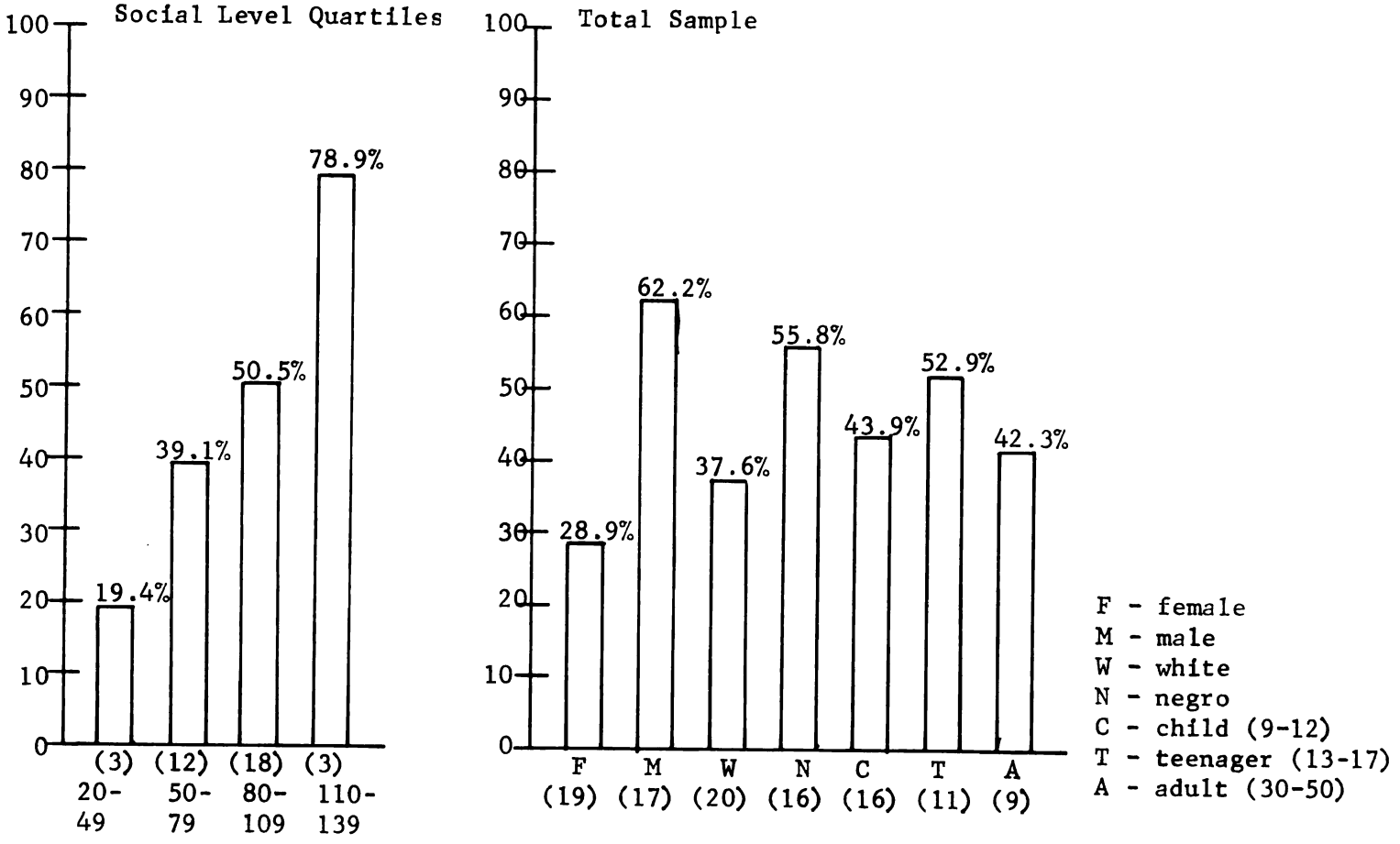
The status of the "participial -ing" as a more conscious social index is confirmed by the teaching against its "mispronunciation" which has occupied the public school teacher's time for years. The variation which exists is between /n/ and /ŋ/, where the latter phoneme occurs in the morphemic unit which may be called "participial -ing."

To test the hypothesis that the variation between /n/ and /ŋ/ in this morphemic unit correlates with social factors in a more regular way than the variation of other non-normative phonemes, a series of graphs was drawn up. The occurrence of the morphemic unit "participial -ing" was counted in the speech of each informant, and the percentage of realization of /n/ calculated. The results are shown in Figure II, (p. 47).

The differences between the columns representing quartiles of the social level range suggest that there may be as many as four separate groups divided by the stratification socially of the /n/ occurrence in the "participial -ing." However, since there are only three persons in the first and last columns, a similar test with a much larger sample should be conducted to lend more definite support to the hypothesis.

The difference between the performance of males and females seems to suggest that this feature is probably a sex differentiator. There is still an obvious difference also between the ethnic communities, though not as great as was shown for the less conscious morphophonemic and allophonic variations. And finally, though the teenagers have a slightly higher percentage than other age groups, it is not believed to be large enough to constitute an important

Figure 11: /n/ % in "participial -ing": total sample

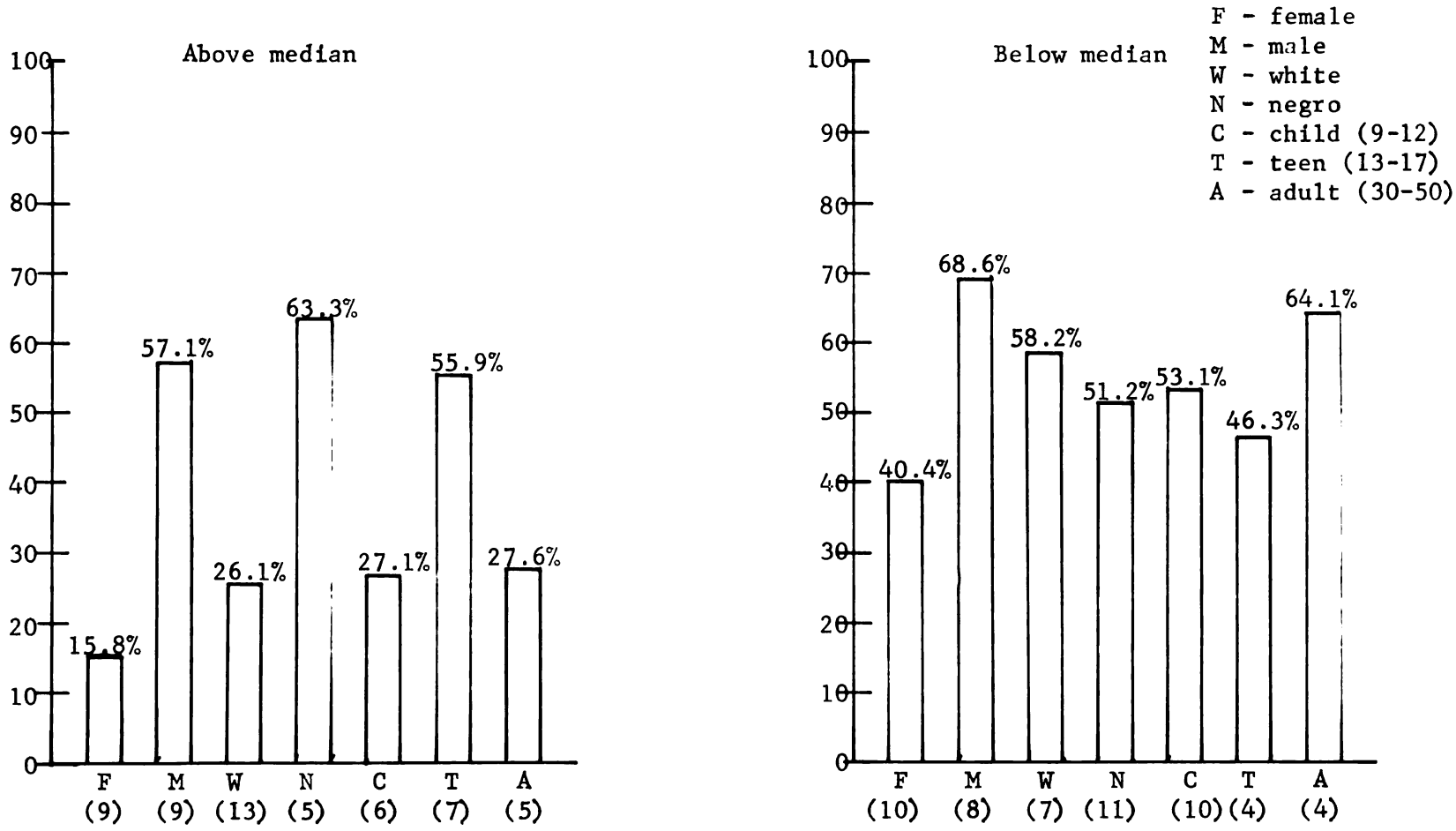


variable.

The small number of informants in the first and fourth quartiles makes it difficult to assemble separate comparisons by sex, ethnic community, and age for each quartile. Consequently, Figure 12 (p. 49) depicts these comparisons for those informants above and below the social level median. Above the median there is a great difference between males and females, between whites and negroes, and between teenagers and other age groups. With respect to age and ethnic community, the informants' behavior is very much like that shown in Figures 6 (p. 34) and 8 (p. 39) for other kinds of morphophonemic and allophonic variation. However, with respect to sex, there seems to be a much more important difference in behavior with the "participial -ing," than there is with other variations. This seems to support the findings of an earlier research project on "participial -ing" reported by John L. Fischer, (1958, reprinted in Hymes, 1964, pp. 483-8). In a much smaller and more socially restricted investigation, Fischer concluded that the phoneme /n/ŋ was patterned according to sex and social class, among other factors (p. 485).

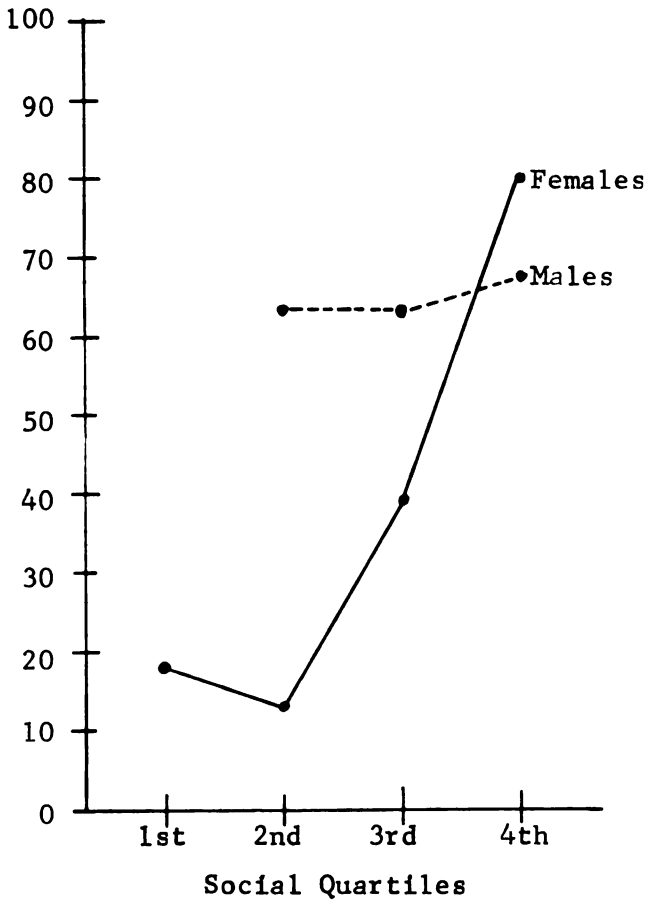
Below the median social level, there is still a difference between males and females. In this group, there is little difference between the ages, as was seen before in Figures 6 (p. 34) and 8 (p. 39). The fact that the percentage for the negro ethnic community is smaller than that for the white group below the social median seems very peculiar. However, it must be noted that these percentages reflect only the number of /n/ŋ 's, and in the negro group many of the "participial -ing's" contain instead [ṽ]ŋ.

Figure 12: /n/[ŋ] % in "participial -ing": above and below social median

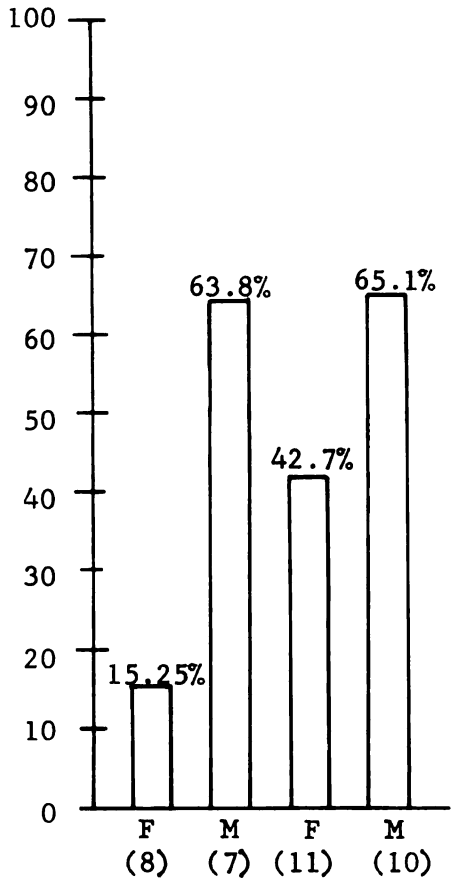


Two further checks were made of the data to make more certain of the difference between the sexes. Figure 13 (p. 51) illustrates by line graph what the problem with this sample is, that is, that there are no males in the first social level quartile, and only one female in the fourth quartile. Consequently, bar graphs were constructed for groups above and below the social level median, where there are more nearly the same number of males and females in each group. It can be seen (Figure 13, p. 51) that there is a wide difference between males and females on both sides of the social level median. It is believed, then, that the distribution of the phonemes in "participial -ing" is an important linguistic differentiator of the sexes.

Figure 13: /n/ŋ % in "participial -ing": males vs. females



No males in 1st quartile
One female in 4th quartile



Above Median Social Number
Below Median Social Number

CHAPTER III

CONCLUSIONS

The research described above has at least two primary goals. One is to investigate methods of compiling language materials from metropolitan areas in such a way as to be able to compare the speech of informants of different ages, races, sexes, and social levels. An effort was made to show how tape-recorded data from a small sample may be studied and compared in a quantitative way.[6]

The second goal was to determine the feasibility of correlating linguistic behavior in the social dimension with available non-linguistic data on the informants. For this purpose a suspected phonological index of social status was investigated, the distribution of the nasal consonants and their allophones.

The graphic display of the data on the preceding pages seems to warrant a number of interesting tentative conclusions. First, it appears that the occurrence of the [$\tilde{V}$] allophone of all three nasal consonants in syllable final position and as the first member of a consonant cluster coda is distributed in such a way as to occur much more often among lower social level informants than among upper level persons. This is not, however, simply a matter of presence or absence of the allophone, since it occurs in the speech of all informants. It is rather a matter of the relative frequency of its occurrence, illustrating that what has been called "free variation" may more

accurately be termed "socially influenced variation." This variation in the occurrence of the [ṽ] allophone apparently constitutes no more than a two-way division into upper and lower social levels.

Second, though there is a small difference in the use of [ṽ] for males and females, and a slightly larger difference in the use of all non-normative phonemes and [ṽ], it is the large difference between male and female use of /n/ŋ which is believed to show that the nasal consonants evidence sex differentiation in their occurrences.

Next, the differences between negro and white speakers' use of [ṽ], all non-normative phonemes, and /n/ŋ apparently suggest that social level groups are separated by nasal consonant occurrences into ethnic communities, which parallel the social groups. That is, the primary division seems to be into social levels, while each of these is divided into ethnic communities.

Finally, although the age groups show only small differences in the use of [ṽ], non-normative phonemes, and /n/ŋ when the total sample, or only those below the social level median, are examined, the teenagers above the median differ widely from the other age groups. This would seem to suggest that the behavior of nasal consonant phenomena is an age grader above the social level median.

Since the informants seem to split into four separate groups on the basis of the occurrence of /n/ŋ, it seems reasonable to suggest that this may be a "more conscious" index of social status than is either [ṽ] or the distribution of all non-normative phonemes and [ṽ]. For the latter two phenomena, it does not seem feasible to divide the thirty-six informants into more than two groups.

In a more general way, this research has demonstrated the feasibility of the use of such types of metropolitan language research data as that of the Detroit Dialect Study for studying social variation in linguistic behavior. For many studies in phonology and for most in morphology and syntax, tape-recorded data seems useful.

Two kinds of possibilities for future research suggest themselves. The first should be a carefully structured subjective reaction test of the kind described by William Labov, (1966,pp. 405-54). It would seem that only in this way will it be possible to establish the existence of, and the degree of conscious control of, the various kinds of nasal consonant phenomena described above as phonological indices of social level.

In this regard, it is curious to note that the behavior of [ṽ] in particular is a "potential" social index in at least two different ways. It is potential in that it cannot be considered as proved beyond a shadow of a doubt. And it is potential in that it may in the future be consciously recognized by speakers in the different social levels. In that case, something like the prestige-based phonetic drift described by Martin Joos may occur (1952, pp. 222-31).

The other kind of future research involves the institution of other studies of language in metropolitan areas in other geographical regions of the United States. Many of the features of lower social level and ethnic community speech seem to be frequently identified as southern characteristics. Investigations of social indices in the phonology of some southern metropolitan areas could show what the relationships between social and regional dialects are.

And finally, it seems reasonable to propose that, in the future, standard tests of statistical significance be performed on data like that described above, and compared with the results of carefully constructed subjective evaluation tests. Such an investigation might show whether statistical significance and linguistic significance are necessarily related.

NOTES

p. 8 1

One of the goals of this research is to investigate possible techniques of analysis for this type of data. Therefore it is not intended that the conclusions of the study should be taken as a valid characterization of Detroit speech as compared to that of other geographical locations, nor that the counts of frequencies and types of occurrences should be understood as necessarily statistically valid.

p. 14 2

Of the several possible alternate descriptions for the nasal consonant phenomena under study here, two besides the one ultimately chosen merit brief descriptions.

A description in terms of generative phonology would avoid many of the problems of the classical phonemic description by eliminating altogether the phonemic level. A morphophoneme |N| would then be realized as one of several distinctive feature matrices which represent [m], [n], [ŋ], or [$\tilde{V}$]. Which of the matrices would be chosen would depend on statements elsewhere in the phonological component of the grammar about such configurations as consonant clusters, syllables, and so on. Such a description has not been worked out yet in any detail.

Another possibility would be to propose nasalized vowel phonemes, /$\tilde{a}$/, /$\tilde{i}$/, /$\tilde{o}$/, and so on, which are variants of different nasal consonant morphophonemes |N|, |M|, and |Ŋ|. Such a description, however, would seem to be somewhat more unwieldy than the one chosen. Furthermore, it would be very difficult to support the postulation of a nasalized vowel phoneme. Where minimal pairs exist with such words as "sun," "some," and "sung," it is the speaker's knowledge of the distribution patterns in morphemic and syntactic sequences which enables him to determine which of the three nasal consonant phonemes has been realized as a nasalized vowel. It would therefore be hard to justify the postulation of nasalized vowel phonemes on phonological grounds.

p. 16 3

This strange assortment of contexts is probably a consequence of the fact that /m/ is the least frequently occurring of the nasal consonant phonemes. It seems quite possible that a much larger body of data would show the nasalized vowel occurring as an allophone of /m/ in the same contexts which were noted for /n/ and /ŋ/.

One exceptional occurrence which should be noted, though, is that of the nasalized vowel allophone of /m/ preceding [d]. This is the only instance in the data of any [Ṽ] before a voiced stop consonant without any pause or juncture. The data is not sufficiently extensive to afford an explanation.

p. 19 4

At this point two distinct advantages of the tape recorded interview for this type of work became apparent. First, at times the nasal consonants occur so rapidly and so close together that no on-the-spot transcription could hope to identify all of them accurately. The taped interview is available for replay as often as necessary until the tape wears out from use. Second, an operation which can never be reliably performed with the cooperation of the informant can be done with the proper tape recorder. The particular passage that is of interest can be played at a speed half or one quarter as fast as the speed at which it was recorded. This results in a certain amount of distortion of various sorts, but some of this is ultimately very helpful to the analyst. Many of what might be called corollaries of the production of particular sounds become emphasized or highlighted. Aspiration and the lack of it are very obvious, nasalization and points of articulation are more accurately identified, and very short sounds in terms of real time, either vocalic or consonantal, can be heard. The identification of points of articulation was very important for the present study. Although a tape recorded /m/^{m} is fairly easy to distinguish from an /n/^{n} or /ŋ/^{ŋ} the latter two are sometimes difficult to distinguish from each other. Slowing down the tape also makes it obvious whether there has been actual solid closure for the production of a nasal consonant or not.

p. 21 5

A large number of the phonological words which were examined were monosyllabic, and therefore had word stress. Had the unit examined been the phonological phrase, the stress situation would very probably have paralleled that in phonological clauses.

p. 52 6

While the investigator did not perform any of the standard tests for statistical significance on this data, he has included as many as possible of the necessary figures, so that those who wish to perform the statistical tests may do so. The population of each column in the bar graphs is indicated, so that the inferences drawn from the differences between columns may at least be called "important," if not "significant."

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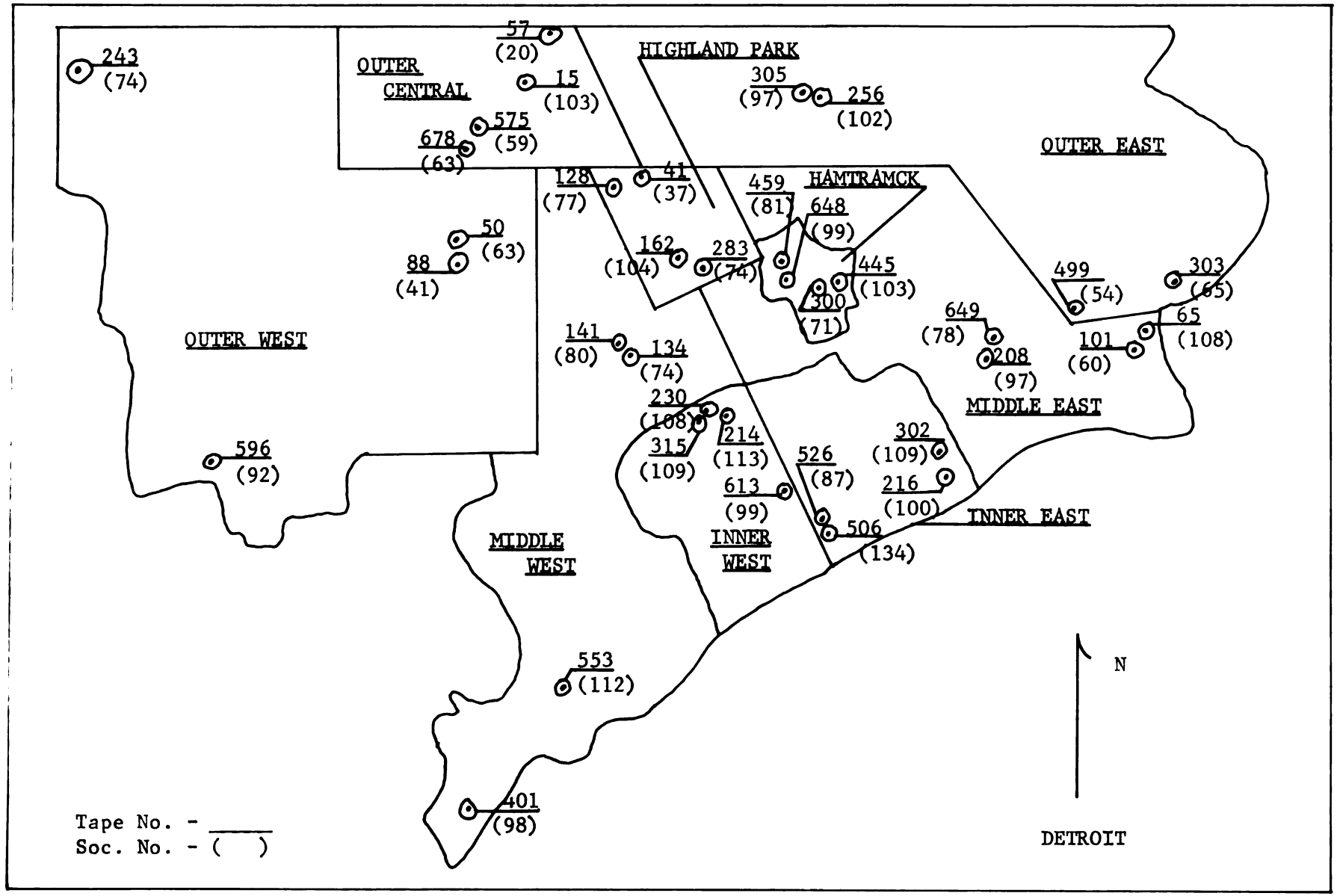
APPENDICES

Appendix I. Distribution of informants geographically



Appendix II. Informant data

Tape Number	Inter-viewer	Age	Sex	Race	Social Number	Time	Area
41	REC	43	F	W	37	3:23.5	Highland Park
128	WAW	13	M	N	77	7:7.0	Highland Park
162	EAA	9	F	W	104	3:28.7	Highland Park
283	VHL	11	F	W	74	3:52.9	Highland Park
300	WKR	38	M	W	71	3:45.0	Hamtramck
445	JN	13	M	W	103	2:53.8	Hamtramck
459	WKR	11	M	W	81	3:28.6	Hamtramck
648	CMW	11	F	W	99	3:56.9	Hamtramck
15	CWJ	10	M	N	103	2:23	Outer Central
57	EAA	10	F	W	20	4:11.0	Outer Central
575	DD	42	F	W	59	3:57.7	Outer Central
678	WKR	17	M	W	59	3:31.5	Outer Central
50	EAA	11	F	W	63	2:46.0	Outer West
88	DD	40	F	W	41	3:00.0	Outer West
243	JN	9	M	W	74	2:24.0	Outer West
596	VHL	15	F	W	92	2:20.2	Outer West
256	CMW	12	F	N	102	2:40.2	Outer East
303	CWJ	14	M	W	65	3:56.3	Outer East
305	CWJ	35	M	N	97	2:40.3	Outer East
499	CWJ	12	F	W	54	4:17.7	Outer East
134	DD	46	M	N	74	3:29.4	Middle West
141	WAW	16	F	N	80	2:46.6	Middle West
401	WAW	10	M	N	98	3:39.4	Middle West
553	WKR	11	M	W	112	3:11.3	Middle West
65	VHL	12	F	W	108	3:50.2	Middle East
101	JL	15	F	W	60	2:55.0	Middle East
208	EAA	31	F	N	97	3:52.1	Middle East
649	EAA	13	M	N	78	4:12.2	Middle East
214	JL	32	F	N	113	3:58.4	Inner West
230	WAW	13	F	N	108	4:15.4	Inner West
315	JL	12	M	N	109	3:03.6	Inner West
613	VHL	11	F	N	99	3:55.2	Inner West
216	RKS	9	F	W	100	4:12.0	Inner East
302	CWJ	13	M	N	109	2:58.7	Inner East
506	WAW	48	M	N	134	2:55.5	Inner East
526	EAA	16	M	N	87	3:36.0	Inner East

Appendix III. Sample typed passage

Informant No. 128
Time - 7:7.0
Social Number - 77

KEY
O - Norm.
/ - V
Z - Other non-norm.
△ - Minute

Well, the last episode I saw was Wednesday. And it was about these people I mean these, this Robinson family, lost on a strange planet. And they had, they, they had discovered a mirror. It was a--well, they had found it in a cosmic storm. And they had, there was two people, one of those, a doctor, named Zachary Smith and a, a girl named Penny, the younger girl. And they, in order to get out of, out of the, to reach safety, they climbed under this mirror, which was laying horizontal over two rocks. They, they, also, the lightning^{Zn} struck that thing. And it looks kind of weird, cause the the mirror had, had something^{Zn} like bulls on it, pictures of bulls, and the bull's nostrils started smoking^{Zn}. And I started shivering in my pants^{Zm}. Well anyways, that storm quickly blew past and they met up with their father, or the head of the whole mission there. And so he warned them that they should never have go any--under anything that was, was left by an alien. Because the materials made by the aliens could be, it could have strange effects, yeah, anything could happen to what, to those, to alien metals struck by cosmic bolts, as he said. So, they had, so the next day, Penny had come back, and, and they had--I don't--I've missed part of it, but I'll tell you that they had the mirror set up horizontally--I mean vertically. And so she was looking^{Zn} through the mirror. And she stumbled and fell right into it. And when, [1] / [2] and they called this, and she fell into an different world, which is called

the World Behind the Mirror. And she was, she had met a boy down there. I forgot what his name was. But anyways, they, he showed her around. And while they were showing there they had come up with a strange monster. And, and when she was, when she, then she remembered that there was some kind of alien cannon, you know some kind of a schisms. And so at about the same time, Zachary Smith was looking around for Penny and he, he, he decided, because some controversy was going on, they said that he was having some kind of dreams or illusions, and it was all centered on that mirror. So he decided that he would break it. So he lifted up a shovel and started to hit it. But he stumbled and fell into this world, too. And, but just about the same time as they were being, being chased by this monster. Well he, well he decided that this was all part of his dream, that he was pract--he was dreaming, so he looked around and said this is what I have in my dreams. And so, he, he was observing all the strange objects that were in there, like candles, and oth--other things that were said to be lost, you know that people had lost at sometime. And he met up with Penny. And then they, she told him that he, they were being chased by this, you could say it was one-eyed hairy cyclops, not tall or anything, but just making a lot of noise, too. And so he thought, oh, I don't like to see this monster, see what I have in my dreams. So he went up there, and monster clutched him, got him in their bear hold you can call it. And he was feeling the fur, and says, oh, you're a nice monster. I'm glad I--and then, and then the boy was making some sarcastic remarks, which I'm sorry I can't remember, but, but Zachary Smith said, next time I have a dream, I'm going to leave

you out of it. And then, then the monster started to hurt Zachary Smith, and he started screaming. But he did something and released himself from the hold of the monster. And then he, then Penny came around with this weapon and gave it to him, you know. So he shot at the monster and the monster went away. And then, then he saw, saw hi--monster and shot at it. But it caned out to be that it was a reflection of the monster, and then he looked across the big space again, and saw another image. And he shot at it. Well, then he made a remark about that weapon, he says, next time I have a dream, I'm going to produce a better weapon. And then he then the, then they ran across this room. And then there was, there was something like a pool of water, you know. And the monster was coming in real close, and was chasing them. And so, in despair, he shot at his own reflection. Well, this had some strange effects, because he ended up on the outside of the mirror again, you know, laying down. And then, Penny got the idea that if he could do it, then she could do it too, also. She didn't like the world anyways. And she also did the same. And she told the boy--she liked the, you know, she grew to like the boy--and she told him to follow her. Well he, he told them that at first he didn't want to let her go, you know. He took the gun away from her, and then he eventually gave it back. And took it away again. And then, then when she got back, she shot at her own reflection. She ended up on the ops--, on the opposite side of the mirror. And, and so, he, he, while she was gone, he said I can't do that. And then he, then they trained the camera down to his own reflection, he said I don't have a reflection. Because, you know, he was part of the world, and he wouldn't have a

reflection anyways. And that, and then they, they got back to the Jupiter two, that space craft that they landed in there, and she, she, Penny was sort of sad. And what Zachary Smith said, is that any girl can have a dream, you know. They didn't believe her story about the world, anyways, so he claimed it as that. Well, she, she quickly recovered from that, that night. And then she, then she told her mother, would my hair look nice standing up like that? You know, because that was some other comment by, made by her older sister about she was always looking sloppy and everything and she ought to start thinking about the men in the world. Well anyways, that, that ended the story there.