

THE REALITY OF SOUND CHANGE: A SOCIOLINGUISTIC INTERPRETATION

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This paper attempts to summarize the latest findings of my research on sound change. It also contains criticisms of and comments on previous studies along this line. In the main, a new theory is proposed, suggesting that the process of sound change can be observed within one generation. Given this theory, four questions are asked, which become the focus of my argument in the course of discussion.

The Problem

Sound change has been an intriguing subject in general linguistics for almost two centuries. I wish to emphasize, however, that language as a code does not change by itself; people who employ the code change it. It is from this point of view that I shall address myself to the reality of sound change.

To begin with, let me identify the problem. Linguists have in the past been led to believe that it will take generations to produce certain changes and that the length of time that is needed to show such changes is too long, or to put it the other way around, that the ongoing progress of such changes is too subtle and slow to allow any direct observation.

Labov has recently challenged this traditional belief by advocating that change can indeed be directly observed. However, Labov's observation of sound change in Martha's Vineyard, involving a claim that sound change may be captured while in progress, takes in three generations (Peng 1976, 70), thereby yielding to the "myth" in the literature that changes occur across the boundaries of two or more generations.

This myth was repeated once more by Johnson recently (1976) who claims that "The time span considered can be across several centuries or as few as two demographic generations" (1976, 165). He thus concludes that "Specifying the terms 'fast' and 'slow', we have given some support to the claim that change begins slowly and accelerates in succeeding generations, and we have given evidence that change advances more rapidly in urban than in rural communities" (1976, 171).

In view of this (unfortunate) development, several questions need to be raised here, so as to eradicate once and for all the

myth that seems to persist in the literature. For the sake of convenience, these questions are asked below in the order in which I shall discuss them in this paper:

- Q1. Is it linguistically plausible to construct a theory of sound change that is based on the assumption that sound change takes place across the boundaries of two or more generations?
- Q2. Is it true that change begins slowly and accelerates in succeeding generations?
- Q3. Is it theoretically sound to generalize from one type of changes in one language to the same type of changes in other languages?
- Q4. Can linguists, historical linguists in particular, do themselves justice by ignoring nonlinguistic changes when they deal with linguistic change?

Previous Study on Sound Change within One Generation

Let me quickly review what I said in Peng (1976) concerning sound change within one generation. First I took Nomoto's 1950 study and 1971 study and came up with the result that each individual seems to continue developing his or her speech beyond 13 years of age, at an ever decreasing rate, until the age of 35 or thereabout. I added that "Such is the case in most of the phonetic parameters" (1976, 82). I then proceeded to ask a question: If changes can be directly observed to take place within one generation, what are the mechanisms of sound change that may be discerned from the study? Five mechanisms were then singled out: Age factor, Educational background, Phonetic parameter (i.e., the choice of speech sound), Oscillation (for what Weinreich called retrograde), and Life expectancy. Each mechanism was elaborated on the basis of supporting data (1976, 83-90).

Second, I took Jespersen's metaphor and compared it with my alternative schematic representation of language change, which may be recapitulated as follows (1976, 91):

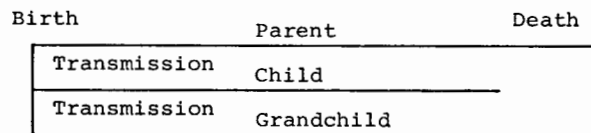


Figure 1. Illustration of Jespersen's Metaphor

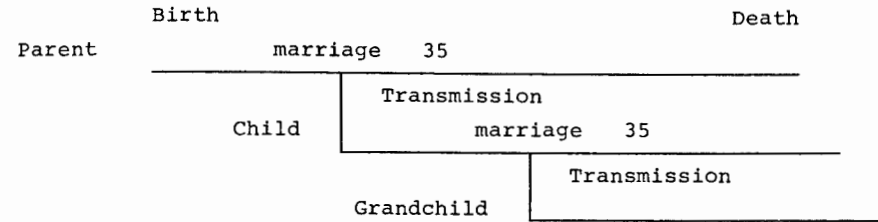


Figure 2
Alternative Schematic Representation
of Language Change

This alternative theory suggests that the child can learn his language perfectly; that in spite of his perfect learning, the language in question still changes because the model the child learns his language from had changed considerably before the child was born; and that the child's model had, in turn, learned from quite a different model, just as the child will serve as quite a different model to his own child. In this way, I concluded that a sound change, be it abrupt or not phonetically, can only be gradual in terms of behavior within each individual, with smooth (i.e., perfect) transmission from generation to generation (1976, 92).

To illustrate this point, let me make a distinction between changes in language behavior and changes in linguistic code. This distinction is important because the accumulation of changes in language behavior results in changes in linguistic code, and changes in language behavior are directly observable; on the other hand, changes in linguistic code may or may not be so observed if one's aim is to determine the end points, rather than the ongoing processes, of the period of operation of a sound change. An exemplification of this distinction is in order here.

In his criticism of the 'gradual view', Wang cites an interesting case as follows: "so, for a word like acclimate in which the pronunciation changes from [əkliájmt̩], the only pronunciation found in some older dictionaries, to [əkliúmejt̩], where all three vowels are different (in addition to the difference in accent pattern), it is surely unrealistic to suppose that there was a gradual and proportionate shift along all four phonetic dimensions" (1969, 14).

Note that while the change from the first to the second pronunciation may be abrupt along all four phonetic dimensions or even one phonetic dimension, it is notwithstanding a change in the

system of the linguistic code. Thus, the abruptness is immaterial here, because any native speaker of English can switch instantly from one pronunciation to the other with little difficulty.

By contrast, however, the change in language behavior from the first to the second pronunciation must be gradual. This aspect of gradualness can be directly observed and measured as part and parcel of language behavior, among various groups of people with varying social backgrounds.

From the above review it must now follow that if changes in language behavior can be systematically described, there is no need to wait for the result (i.e., the end point) to show up in the code itself. We must come to grips with the ongoing process of changes in language behavior that underlie the net result of changes (i.e. end points) in the linguistic code.

Discussion

With the conception of sound change presented above in mind, let me now return to the questions originally asked. First, I must mention that it is rather unfortunate that Johnson repeats the traditional view that sound change must take place across generation boundaries.

Empirical evidence is presented in Peng (1976 and n.d.) that sound change takes place not only within each individual but at an ever decreasing rate, that is, taken cross-sectionally, a person may change his linguistic system within his life span but gradually reduces his rate of change until the age of 35, even though changes may continue to take place after the age of 35 (but at a much reduced rate). In light of this finding, it is hard to believe that sound change must take place across generation boundaries.

Second, given the above finding that sound change takes place within each individual at an ever decreasing rate, I must now ask whether it is true that change begins slowly and accelerates in succeeding generations. Although the data presented by Johnson may seem suggestive of this tendency, a closer look at his data indicates otherwise (especially when they are compared with ours), simply because ours can account for changes within one generation, whereas Johnson's (which include several sources) contain materials from at least three generations, each having a different age bracket and being younger than the preceding generation. For instance, he uses Labov's material from Martha's Vineyard (aw) that covers three generations; namely, Oldest Generation, Middle Genera-

tion, and Youngest Generation. But note that the three generations correspond to age level 61 to 90, age level 31 to 60, and age level 30 and under, respectively (cf. Labov 1972, 22 and 279), and that there is no information about the changes that the younger age groups will exhibit when they reach the older bracket. Thus, when the numerical values (Johnson 1976, 168) of 0.06, 0.37, and 0.88 are compared, the differences do not represent the acceleration of change rate in three succeeding generations; rather, they indicate three static manifestations of one continuous change taken cross-sectionally. In order to get the dynamics of change, what Johnson should have done would be something like this: Wait for the people of the younger generation to reach the next age level (i.e., 30 years) and then compare their centralization with that of the older generation at the same age level. For instance, he should have got the numeric value of the Youngest Generation (under 30) when they reach the next age level (31-60) and compare it with the numeric value of the Middle Generation when they are still at the level of 31-60 and do likewise for the Middle Generation and the Oldest Generation. But nothing of this sort has been done. Consequently, he has no data whatsoever to support the claim of acceleration in the rate of change.

By contrast, our data from the area study show exactly this kind of dynamics pertaining to change. That is, the results of all age groups investigated in 1950 were compared, 21 years later, with those of similar age groups investigated in 1971. Thus, we have information not only on two comparable age groups, say, 35-44, one taken from the 1950 study and the other from the 1971 study, for comparison pertaining to change, but also on different age groups taken cross-sectionally for comparison pertaining to the rate of change. The data from the area study are then backed up almost one to one by our data from the panel study. Thus, in the case of sound change, we can comfortably conclude that all age groups have changed but that the rate of change goes down as the age goes up within each generation.

From the aforementioned it must follow that there is a certain degree of incongruity in Johnson's data. For instance, how can he be sure that the first generation (Oldest Generation) did not have a faster rate of change when they were younger and that the third generation (Youngest Generation) will not slow down when they grow older? In fact, his data support precisely what we have found if

his three generations are regarded cross-sectionally, which is to say that the rate of change will be reduced in all cases, e.g., Martha's Vineyard, as one goes from the Youngest Generation (0.88) through the Middle Generation (0.37) to the Oldest Generation (0.06). The fact that Johnson has no data for each individual within one generation (which, by contrast, we have in the panel study) regarding his or her changes suggests that he cannot be sure of the rate of change being faster in each succeeding generation, that is, accelerating in succeeding generations. To demonstrate this fact, let me resort to a schematic representation of language change.

Figure 3 depicts sound change within one's own life time (notably from 15 to 44 years of age) with a plotted extension (dotted line) beyond 44. I have also circled three places which correspond to Labov's three age levels utilized in Johnson's data. The result of these modifications in the schematic representation is recapitulated as follows:

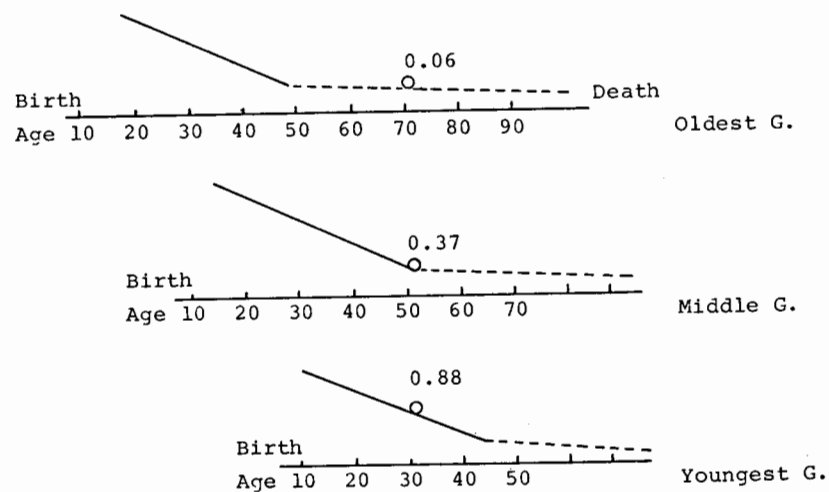


Figure 3
Schematic representation of sound
change and its rate

Observe now that this schematic representation shows that what Johnson has done is pick the three age brackets, one from each generation, with differing numeric values of vowel centralization (each of which falls in line with and can be explained by the rate of sound change therein). From my point of view, then, that the Oldest Generation has the lowest numeric value is not because, as Johnson has claimed, change begins slowly at first but because the age bracket (61-90) picked has, according to the schematic representation, already slowed down the rate of change; and likewise, that the Middle Generation and the Youngest Generation have successively increased their numeric values may also be explained by the fact that in the schematic representation they are younger in age and, therefore, stand higher in the rate of change. Consequently, it is not at all because change begins slowly and accelerates in succeeding generations, as claimed by Johnson who also thinks that he lends support to the claim of Wang and Cheng (in their discussion of lexical diffusion) and of Bailey that sound change follows an S-curve (Johnson 1976, 168). (By an S-curve is meant that sound change begins slowly and then increases rapidly [in some cases leaving residue].) In the light of my explanation above, it should be clear that none of the assertions made by Johnson and others is true.

At this point, I must add that certain sounds are more susceptible to changes than certain others (Peng 1976, 84 and 90). Given this view, which is supported by factual data from Japanese, the rate of sound change cannot be taken to mean that all language sounds (in a given language) progress in the same direction or at the same pace. Neither is it the case that the same type of sounds (in different languages) should have a fixed rate of change.

English may be cited as an example which shows marked ongoing changes in vowels rather than in consonants. This is, of course, historically true as well. However, another language, like Japanese, does not necessarily follow suit; my own study (Peng, 1976) clearly suggests that in Japanese consonants are much more susceptible to change. Thus, to answer Q3, I must say that whatever there is to discover regarding sound change in progress based, say, on English vowels, cannot and must not be generalized to apply to another language, unless there is a very good factual ground on which to build such a theoretical construct. I hope historical linguists have learned the lesson from the past, never to repeat the same mistake in the current exploration of sound change.

Conclusion

Let me now summarize by presenting three points, so as to bring the whole presentation to a close. Firstly, although linguists have been aware that when we speak of change it is people who change, and sound change is simply a manifestation (or symptom) of human change, not enough research is being done in, or attention paid to, the probe of what I have called the dynamics of change. This kind of study requires both cross-sectional and longitudinal investigations of fairly large samples in the same areas with the same method at an interval of hopefully 20 years. Since research of this nature is often painstaking and costly, historical linguists should turn to linguistic geographers and other social scientists for assistance in the provision of advice and materials; in spite of linguists like Kuryłowicz, who once renounced all support from linguistic geography and other social sciences for internal reconstruction (1964), it is through this kind of cross-fertilization that language scientists can hope to achieve the goal of dealing with the dynamics of change, among other things.

Secondly, I have also presented sufficient evidence to support my claim that if it is people who change, the change itself must take place within each individual to begin with, whose rate of change is affected by his or her own physical condition (age or maturation) as well as by the environment. Thus, as each individual increases his or her age, the rate of change decreases. Nobody knows, however, what will happen if life expectancy is extended beyond 100 years of age, to the rate of change.

Of course, life expectancy alone is not the influencing factor of human change; the environment counts heavily in this regard, the foremost influencing factor in the environment being human interaction. Note here that although the Japanese now live longer (perhaps longest?), 57% of the Japanese population is crowded on only 2% of the land, according to the latest report prepared by the Prime Minister's Office (The Japan Times, June 27, 1977). In this respect, then, Johnson is probably right in saying that "change proceeds more rapidly in urban than in rural areas" (1976, 165). I have reached a similar (albeit more substantial and elaborated) conclusion (Peng 1978).

Finally, I should mention that if human change is the key to sound change, more rigorous research is needed in such realms of

specialization as phonetics, neurolinguistics, sociolinguistics, and pedolinguistics to help determine the change and development in the total behaviors of humans as organisms.

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