

PHONETICS AND SOUND CHANGE

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A condition of wide-spread temporary bilingualism, whatever its cause, leaves its traces upon both languages involved. This phenomenon has been called, in its synchronic aspect, interference. Diachronically it manifests itself, wherever bilingualism is succeeded by monolingualism, as substratic or superstratic effect upon the emerging single language. In the last analysis we are dealing here with linguistic change due to borrowing: the borrowing speaker, under the inescapable pressure of his native phonemic habits, pronounces the borrowed items with, as one says, a foreign accent. But this foreign accent, if employed by enough speakers over long enough a time, may become standard – exactly as any other linguistic “error”, or, for that matter, any social or cultural “error” whatever, if made by enough persons over long enough a time, ceases to be an error. This linguistic change through borrowing from another language is then due, I should say, to *external interference*.

Internal interference, on the other hand, leads to linguistic change through borrowing, not from another linguistic system, but within the same system, within the same linguistic structure. Now this concept of borrowing within a single structure, among speakers of the same language, may seem a paradox, which I must explain.

In my book on the *Introduction to Spectrography* (The Hague, Mouton, 1959) I suggest (pp. 146-9) that the acoustic and articulatory limits of phonemic sound classes are not rigid but elastic (although, as far as I know, no accurate quantitative measurements of this elasticity have been accomplished so far). That is to say, a speaker need not only not realize a phoneme in the phonetically identical way at each of its occurrences (which would be humanly impossible in any event, and which is implicit in the notion of the phoneme as a sound class whose realizations are by definition non-identical), but he may indeed realize, occasionally or as a matter of personal, permanent idiosyncrasy, a phoneme by means of such a phone as is, in the usage of another speaker, acoustically a member of another phoneme class, albeit most likely one in articulatory or acoustic vicinity. I am not speaking here of differences attributable to either local or social dialect particularities, but only of peculiarities of, if you will, personal style. Speakers may, and many do in fact, avail themselves consciously or unconsciously of a certain latitude in phonetic renderings of a phoneme without placing themselves outside their native dialect, without having to appear as foreigners. (I should note here parenthetically that, in any case, it

is often the adequate performing of non-segmental acoustic features, especially stress and intonation, that contributes more to the appearance of nativeness than does the correctness or orthodoxy of segmental phonemic realizations.) The listener makes allowances, he adjusts himself at once to the scale of phonemes as used by the speaker, and the communication suffers no damage. (A striking example of this adjusting performed by the hearer is offered by Yoruba, an African tone language with more than one *even* tone, in addition to the common rising and falling tones. The listener is thus obliged to establish the pitch scale of the speaker before he can determine whether a given even-tone item was pronounced on the higher or lower tone. If such an item occurs without either linguistic or situational context in an utterance of a speaker whose voice quality is unknown to the listener, communication may indeed be impeded or thwarted).

Spectrography of both the analytic and synthetic kind, and listening tests based on actual speech and on synthetic material, have shown areas of overlapping in the production and perception of phonemes. (And Mr. Fant noted on Monday of this week that the number of *phonetic* segments in an utterance is generally larger than the number of identifiable phonemes, that is, *functional* segments.) Now it is very well to label the performance of the speaker or listener as inadequate, or inaccurate, or false whenever certain limits are exceeded, and some linguists will insist that phonemes do not, or must not, overlap – though this position is not easily reconciled with the view that the native speaker cannot err. I should agree that non-overlapping of phonemes is a condition of phonemic analysis, of ordering of phones into classes. What good are classes if they do not classify unambiguously, if there is an item that fits in no class, or into several classes? Yet it cannot be denied that, in the stream of speech, such overlapping of performances does indeed occur, that a phone [x] may be one man's /I/ and another man's /e/ – in the same dialect! Any spectrogram may show that, and any synthetic vowel may solicit such double interpretation by the listeners. The only way to salvage the integrity of phonemic classification, which we need because without it we cannot describe a language, and at the same time to take cognizance of the physical reality of human speech performance is, I believe, the notion of more than one phonemic scale for a given dialect. That is to say, the number and kind of *phonemic oppositions* in one dialect are, by definition, constant for all speakers and all performances; but the *phonetic realizations* need not fall within exactly circumscribed, non-overlapping boundaries. Or, in other words, while every phone can be accurately placed within a scheme, for a phoneme we can at best establish a general locus but we cannot satisfy a requirement of absolute acoustic limits. That this is so is not surprising. A phone is a natural entity, a phoneme a social entity. Phonetics is a natural science which organizes natural, physical facts; phonemics is a social science which organizes human activities that are subject to variation. (I shall happily agree with you that the term "science" is not used in the same sense in the two formulations.) Linguistics partakes of both; and linguists must be acquainted with both.

Many such personal, individual, stylistic variations of performance of which I spoke, remain just that, and they impose no phonemic consequence upon the structure within which they occur. That is to say, the phonetic latitude which a speaker arrogated, and which the speech community tolerated, is not imitated by other speakers. But it may be imitated, and it may spread, and it may become the norm. That is internal borrowing, and internal interference. Language in this respect, too, is no different from other human cultural behavior, be it of play, of dress, or of diet. It is, culturally and socially speaking, in no way different from other social and cultural baggage we bear or are burdened with. Hence like other cultural paraphernalia, it is subject to fashions and fads, and it changes ceaselessly.

For the phonetician and the phonemicist the most striking discrepancy between external and internal interference is that in the first there occurs a clash of two different phonemic structures, whereas in the second only one phonemic structure is involved. If external interference can therefore be dealt with satisfactorily, though of course not completely in all details, on the phonemic level, internal interference will be describable, at least in its inception and progress, on the phonetic level only.

It seems to me that internal interference as a factor in historical phonemic changes is often slighted or ignored, and that with it phonetics is not accorded its necessary prominence in academic instruction and research pertaining to historical linguistics. This tendency has been reinforced, I fear, by the emphasis on distributionalism in synchronic phonemic analysis at the expense of physicalism (see my *Introduction*, p. 7 and *passim*), and by the recent eminence given to diachronic phonemics. This direction in historical linguistics has taught us much, and has said a great deal in terms superior to those employed by the Neogrammarians. But it also has, by its claim to exclusiveness and by the enthusiasm with which some disciples of the new school discarded the past, given rise to some notions with which I do not agree. For example, in many instances phonemic substitution does indeed operate so as to fill an empty slot in the phonemic scheme, or to repair asymmetries. But I have long suspected that the symmetry or asymmetry of the scheme was as often as not one of the design as created by the linguist, and not one existing in fact. The diversity of the designs proposed for any one language was not apt to allay this fear. (And the illuminating paper offered yesterday afternoon by Mr. Haugen showed convincingly that, in any event, the two-dimensionality of the schemes often distorted or unduly oversimplified the facts.) In any case, even where a lack or a disturbance of symmetry can be demonstrated, phonemic change *may* so operate as to repair it, but it *need not*, and it certainly is not the *only* condition that leads to linguistic change. (About this we shall hear more, I believe, in the paper by Mr. Collinge, which is to follow mine.)

I do think, therefore, that diachronic phonemics should cease to occupy itself so predominantly, indeed sometimes exclusively, with phonemic *systems*, or succeeding phonemic systems. In saying so I do of course not deny the necessity of devising synchronic systems, because catching language in a state of rest, as it were, is the only manner in which it can be usefully described. It should not be overlooked,

however, that such a descriptive snapshot, or a series of snapshots, represents the reality of language, which is continuous change, no more faithfully than the series of snapshots constituting a moving picture film represents the reality of natural movement. But this continuous change, from which the successive snapshots of phonemic systems may be, and must be, extrapolated, is accessible to, and explicable by, attention to phonetic detail only. For while it is true that as linguists, descriptive and historical, we must describe with and operate with classes, that is, phonemes, the process of classification, synchronic or diachronic, must rest upon and be derived from a close examination of the items *before* they are organized as members of classes. In other words, phonetic analysis of the evidence must precede phonemic classification and history.

Needless to say, this concern with phonetics must rest upon the best knowledge and competence available today, of the kind this Congress has been talking about, and not upon what used to be called phonetics as little as thirty years ago. The time has come for the historical linguist to acquaint himself as fully as must the synchronic linguist with all the findings of scientific, quantitative phonetics. Else his phonemic history, like his phonetic notions (and often his transcriptions), is bound to be of the introspective and impressionistic variety, an omphaloscopic solving of problems (possibly with the aid of an /h/ which no one ever heard, spoke, or wrote) rather than an account of a language which some people used at one time.

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