THE DIAGNOSTIC FUNCTION OF IDIOSYNCRATIC PHONETICS

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This paper is programmatic, in the sense that it discusses proposed research, rather than reporting on research already completed.

By idiosyncratic phonetics, I mean the nondistinctive variations in the pronunciation pattern of individual speakers within the frame of reference of the phonological pattern of the speech community to which they belong. These phonetic idiosyncrasies are not considered random fluctuations, but are assumed to have nonlinguistic psychological correlates; it is because of these correlates that I claim that idiosyncratic phonetics has a diagnostic function.

I find this assumption operationally significant, since it permits me to consider the use of idiosyncratic phonetic features as diagnostic tools—more specifically, I claim that these features constitute, or at least approximate, actual diagnostic parameters which can be used to measure, or to contribute to the measurement of, psychologically significant characteristics of the speakers.

The broader conception on which this assumption is based is the view that language constitutes a "projective system," in the sense that the use of language by the individual can be as revealing of personality characteristics are as his responses to specifically designed projective tests. In the present paper, I shall restrict myself to the phonological aspects of this projective function of language.

From the operational standpoint that I am taking, the key questions are the following two: (1) which are the particular measurable phonological features that can be expected to serve as diagnostic parameters, and how; (2) what research design is best suited to test the validity of my assumptions?

Phonological features can serve as diagnostic parameters in two senses. Either, particular features within the same constant (or near-constant) speech pattern have diagnostic value, or the speech pattern as a whole has diagnostic value, as is the case when the speaker engages in code-switching. Both of these aspects of the projective function of speech may, of course, be manifested jointly in the same speech situation.

Diagnostic parameters within the same speech pattern include the following:

Rate of speech, that is, the number of phonological units per unit of time.

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Frequency and length of pauses.

Hesitation phenomena, including false starts.

Frequency and spacing of different intonation patterns.

Pitch span, that is, the difference in pitch level between the highest and the lowest pitch used in a given intonation pattern; the same intonation pattern may be uttered with pitch spans of different width.

Code-switching as a diagnostic parameter involves primarily a change from formal to informal and regional pronunciation patterns.

The parameters presented above are listed in the order of their tractability, that is, their susceptibility to measurements and other techniques of analysis.

The most tractable parameter is rate of speech. It can be established by the simple tabulation of phonological units (phonemes, syllables, breath groups, depending on the investigator's convenience and interest), or their orthographic representation (such as typewritten transcript with indication of elapsed time). Inaccuracies in the delimitation of the phonological units can be expected to cancel each other out if the sample is large enough.

Rate of speech is probably the only parameter that can be measured without taking into account the details of prosodic patterning. In the measurement of the remaining parameters, the prosodic pattern of the language has to be taken into account to an increasing extent.

The frequency of pauses can likewise be established by simple tabulation, but in this case, the orthographic representation is a good deal less reliable, since the orthography (in those languages where it does so) usually indicates those pauses that are desirable from a normative standpoint, and not those that are actually present in a stretch of speech. The length of pauses, of course, cannot be established by simple tabulation but requires the measurement of the actual phonetic event. In order to be maximally meaningful, the tabulation of pause frequencies and the measurement of pause length should be related to their interpretation in terms of phonemic junctures, although I contend that even without such an interpretation these diagnostic parameters should be revealing if they can be correlated with psychological states.

Hesitation phenomena again can best be observed and tabulated in their phonetic manifestation, unless their orthographic representation in a transcript is unusually exhaustive. In view of the wide-spread habit of subconscious editing of written matter, this will be the case only of the transcripts prepared by specially-trained personnel who have been made aware of the significance of these phenomena for the interpretation of the psychological state of the speaker. Another difficulty is the well-known fact that hesitation phenomena are not uniform, and hence different types of these phenomena will have to be tabulated, and evaluated, separately. This not only requires a prior awareness of the prosodic pattern and the cultural pattern of responses to speech, in order to determine the presence of hesitation phenomena, but it also presupposes some prior psycholinguistic assessment of the

types of hesitation phenomena that can be expected in the speech pattern under investigation.

The frequency and spacing of intonation patterns can obviously be determined only on the basis of a preceding detailed prosodic analysis. Both the frequency and the spacing of intonation patterns must be measured, not merely in terms of units of time elapsed, but also in terms of the number and length of appropriate phonological units such as phonemes, syllables, breath groups, over which any given pattern extends. This also presupposes that the type of phonological unit with which a given type of intonation pattern is associated be ascertained in the course of the prior prosodic analysis.

The pitch span has to be ascertained on the basis of a prior knowledge of the intonation pattern that exhibits a given span. This presupposes not only a prosodic analysis leading to a categorization of intonation patterns into distinctive types, but also the establishment of the norms in terms of which the pitch span is to be measured and interpreted.

In the case of code-switching, the very concept implies that the speech pattern as a whole, or rather, the speaker's change from one speech pattern to another, has a diagnostic function. The situation is complicated by the well-known fact that code-switching need not be complete—shorter or longer stretches, or just individual features, of one pattern may be embedded in the other just as readily as there may be a complete transition from speech using one pattern to speech using another. The extent to which switching takes place is in itself of diagnostic value, as well as the projective significance of the actual patterns.

From an operational standpoint, it is not necessary to observe or measure all the characteristics of the patterns involved in code-switching. What is important is to determine which phonological features are sufficiently characteristic to serve as reliable indices of the fact that code-switching has taken place, and of the extent to which it has taken place.

As was noted, the diagnostic parameters discussed above have been placed along a tentative tractability scale. The operational significance of this scale lies in the fact that it is quite conceivable that the grosser, more tractable parameters (such as rate of speech and frequency and length of pauses) may have a diagnostic value equal to the more subtle and less tractable ones.

On the basis of some preliminary study, the following general research design is suggested for the investigation of the diagnostic function of idiosyncratic phonetics:

1. At least in the early stages of the research, individual voices should be studied separately.

2. For each voice to be studied, a sample of spontaneous speech should be obtained under controlled conditions in an emotionally neutral environment and at a time when the speaker is known to be in a psychological state as close to emotionally relaxed as possible. The parameters of these samples will serve as reference points for the study of samples obtained under other conditions.

3. Samples of spontaneous speech of the same voices should be obtained under equally controlled conditions, but in an environment which is not emotionally neutral, and/or at a time when the speaker is not in an emotionally relaxed condition.

4. Samples of the two types are to be compared in terms of all the parameters listed in order to determine the differences in diagnostic value between various parameters.

5. If the different parameters, as is conceivable, turn out to have approximately equal diagnostic value, then only the gross parameters should be used in further studies.

6. If the different parameters turn out to have significantly different diagnostic value, then obviously the most revealing parameters should be used in further studies.

DISCUSSION

Hill:

I should like to ask how closely the parameters described correspond to H. L. Smith's paralinguistic signals.

W. R. Lee asked whether Prof. Garvin would consider adding to his list of parameters syllable-, word-, or possibly phrase-length, or also loudness and softness of the voice.

Garvin:

Ad Hill: The problem of paralinguistics is a theoretical one. My paper is concerned with the operational problem of tractability, irrespective of the theoretical interpretation of the particular feature under consideration.

Ad Lee: Syllable length certainly constitutes a valid parameter. Words and phrases, on the other hand, do not constitute phonological, but rather grammatical units, and are therefore not included in this discussion.