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Miscellanea Phonetica II

International Phonetic Association, University College, Lon-

The International Phonetic Association has brought out the
second issue of Miscellanea Phonetica. I hope that the re-appearance
of Miscellanea Phonetica at this time is an indication that the
Association intends to publish further issues in the not too distant
future. Students of speech will be grateful to the Association for
this additional source of information.

The four articles in the present issue deal with problems of
speech primarily from a linguist's or phonetician's point of view.
The first three articles discuss details of English phonetics (D.
Jones "Falling and Rising Diphthongs in Southern English") or
fairly subtle points of linguistic theory (A. Martinet "Accent et
fonction" and E. V. Pike "Phonetic Rank and Subordination in
Consonant Patternings and Consonant Change"). The fourth article,
on the other hand, Eli Fischer-Jørgensen's "Acoustic Analysis of
Stop Consonants," treats of problems that have been frequently
discussed in meetings of this society and on the pages of this
journal. I shall, therefore, devote the rest of the review to this
article.

The article is a summary of an investigation of Danish stop
consonants. The basic information was derived from 1368 wide-
band Sonagrams of Danish words spoken by 9 different subjects.
Supplementary data were obtained from "sections" (frequency vs.
intensity displays produced by the Sonagraph), from intensity vs.
time curves produced by means of a special Sonagraph attach-
ment, and from oscillograms.

In analyzing this large body of material the author always
focuses on her main task which is to find the properties which
would enable us to differentiate from one another the six stops of
the Danish language. She envisages these properties as belonging
to two classes: (1) those differentiating \( p \) \( t \) \( k \) from \( b \) \( d \) \( g \) and (2)
those differentiating among the labials \( (p/b) \), the alveolars \( (t/d) \)
and the palatalvelars \( (k/g) \). She looks for these distinguishing
properties in the duration, intensity and frequency spectrum of
the stop burst and of the aspiration following the burst, in the
length of the "closure" period preceding the burst, and in the
behavior of the formants of the adjacent vowels.

She concludes that the differences between \( p \) \( t \) \( b \) and \( b \) \( d \) \( g \) lie
primarily in the aspiration (the former being heavily aspirated, the
latter being either completely unaspirated or very slightly aspi-
rated). In addition there appear to be small but consistent differ-
ences in the length of the "closure" which is relatively shorter
for \( p \) \( t \) \( k \) than for \( b \) \( d \) \( g \). Voicing does not play any role in Danish
(cf. pp. 44–45).

The author formulates the second set of differences in the follow-
ing terms: "\( p/b \), neutral explosion, relatively low resonances;
\( t/d \), high explosion, relatively high resonances; \( k/g \), strong con-
centration of explosion round a frequency bound to adjacent
sounds, varying resonances with tendency to mutual attraction." (p. 59).

To determine the nature of the stop explosion Miss Fischer-
Jørgensen investigated the location of the maxima in their spectra.
The schematic Sonagrams on p. 51 notwithstanding, wide band
Sonagrams are notoriously poor sources of information on the in-
tensity relationships among the various frequency components.
The determination of what constitutes a maximum in the spectrum
is impossible without a fairly detailed picture of the intensity re-
lations. For this reason I am somewhat skeptical about the data
presented on the location of spectral maxima (pp. 48–50), partic-
ularly for \( p \) \( b \) \( t \) and \( d \), less so for \( k \) and \( g \), where at least one maximum
is very prominent.

Because of the great difficulties encountered, recent investiga-
tions of the acoustical properties of speech have, with a few notable
exceptions, tended to deal somewhat summarily with consonants,
preferring instead to concentrate on the vowels. We owe Miss
Fischer-Jørgensen a debt of gratitude for her work, which fills an
important gap in our knowledge.

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