

Contents

Preface 9

Introduction 11

Part One

Acoustics of the Speech Mechanism 19

- 1 Homer Dudley (1940)
The Carrier Nature of Speech 21
- 2 James L. Flanagan (1958)
Some Properties of the Glottal Sound Source 31
- 3 Kenneth N. Stevens and Arthur S. House (1961)
An Acoustical Theory of Vowel Production and Some of its Implications 52

Part Two

Acoustic Analysis of Speech 75

- 4 W. Koenig, H. K. Dunn and L. Y. Lacy (1946)
The Sound Spectrograph 77

Analysis of Vowel Sounds 92

- 5 R. S. Paget (1922)
Vowel Resonances 95
- 6 Gordon E. Peterson and Harold L. Barney (1952)
Control Methods Used in a Study of the Vowels 104

Analysis of Consonant Sounds 123

- 7 Wiktor Jassem (1962)
The Acoustics of Consonants 124
- 8 Peter Stevens (1960)
Spectra of Fricative Noise in Human Speech 132
- 9 George W. Hughes and Morris Halle (1956)
Spectral Properties of Fricative Consonants 151

- 10 M. Halle, G. W. Hughes and J.-P. A. Radley (1957)
Acoustic Properties of Stop Consonants 162

Part Three

Acoustic Cues in Speech 177

- 11 Harvey Fletcher (1953)
Effects of Filtering and Masking 179
- 12 George A. Miller and Patricia E. Nicely (1955)
An Analysis of Perceptual Confusions Among Some English Consonants 184

Speech Synthesis 202

- 13 Franklin S. Cooper, Alvin M. Liberman and John M. Borst (1951)
The Interconversion of Audible and Visible Patterns as a Basis for Research in the Perception of Speech 204
- 14 W. Lawrence (1953)
The Synthesis of Speech from Signals Which Have a Low Information Rate 208

Perceptual Experiments 219

- 15 Pierre C. Delattre, Alvin M. Liberman, Franklin S. Cooper and Louis J. Gerstman (1952)
An Experimental Study of the Acoustic Determinants of Vowel Color; Observations on One- and Two-Formant Vowels Synthesized from Spectrographic Patterns 221
- 16 Dennis B. Fry, Arthur S. Abramson, Peter D. Eimas and Alvin M. Liberman (1962)
The Identification and Discrimination of Synthetic Vowels 238
- 17 Franklin S. Cooper, Pierre C. Delattre, Alvin M. Liberman, John M. Borst and Louis J. Gerstman (1952)
Some Experiments on the Perception of Synthetic Speech Sounds 258
- 18 Pierre C. Delattre, Alvin M. Liberman and Franklin S. Cooper (1955)
Acoustic Loci and Transitional Cues for Consonants 273
- 19 Katherine S. Harris (1958)
Cues for the Discrimination of American English Fricatives in Spoken Syllables 284

- 20 J. D. O'Connor, Louis J. Gerstman, A. M. Liberman, Pierre C. Delattre and Franklin S. Cooper (1957)
Acoustic Cues for the Perception of Initial |w,j,r,l| in English 298
- 21 Alvin M. Liberman, Pierre C. Delattre, Franklin S. Cooper and Louis J. Gerstman (1954)
The Role of Consonant-Vowel Transitions in the Perception of the Stop and Nasal Consonants 315

Perception and Linguistic Categories 332

- 22 Alvin M. Liberman, Katherine S. Harris, Howard S. Hoffman and Belver C. Griffith (1957)
The Discrimination of Speech Sounds Within and Across Phoneme Boundaries 333
- 23 Leigh Lisker and Arthur S. Abramson (1970)
The Voicing Dimension: Some Experiments in Comparative Phonetics 348

Part Four

Investigation of Prosodic Features 353

- 24 Ilse Lehiste and Gordon E. Peterson (1959)
Vowel Amplitude and Phonemic Stress in American English 355
- 25 Arthur S. House (1961)
On Vowel Duration in English 369
- 26 Ilse Lehiste and Gordon E. Peterson (1961)
Some Basic Considerations in the Analysis of Intonation 378
- 27 Philip Lieberman (1960)
Some Acoustic Correlates of Word Stress in American English 394
- 28 Dennis B. Fry (1958)
Experiments in the Perception of Stress 401
- 29 Dennis B. Fry (1965)
The Dependence of Stress Judgments on Vowel Formant Structure 425
- 30 Kerstin Hadding-Koch and Michael Studdert-Kennedy (1964)
An Experimental Study of Some Intonation Contours 431

Part Five

Speech Synthesis by Rule 443

- 31 Alvin M. Liberman, Frances Ingemann, Leigh Lisker, Pierre C. Delattre and Franklin S. Cooper (1959)
Minimal Rules for Synthesizing Speech 445

Further Reading 466

Acknowledgements 467

The plates will be found between pp. 254 and 255