

Contents

Preface	V
Acknowledgement	VI
Report of the meetings of the Permanent Council held during the Tenth International Congress of Phonetic Sciences in Utrecht, 1-6 August 1983	XVII
PLENARY SESSIONS	1
Opening address	
ELI FISCHER-JORGENSEN: Some Aspects of the 'Phonetic Sciences', Past and Present	3
Keynote address	
GUNNAR FANT: Phonetics and Speech Technology	13
Invited Lectures	25
1. Speech and Hearing	27
REINIER PLOMP: Perception of Speech as a Modulated Signal	29
MANFRED R. SCHROEDER: Speech and Hearing: Some Important Interactions	41
2. Relation between Speech Production and Speech Perception	53
L.A. CHISTOVICH: Relation between Speech Production and Speech Perception	55
HIROYA FUJISAKI: Relation between Speech Production and Speech Perception	59

3. Can the Models of Evolutionary Biology be Applied to Phonetic Problems?	65
BJÖRN LINDBLOM: Can the Models of Evolutionary Biology be Applied to Phonetic Problems?	67
PETER LADEFOGED: 'Out of Chaos Comes Order'; Physical, biological, and structural patterns in phonetics	83
4. Psycholinguistic Contributions to Phonetics	97
W.D. MARSLEN-WILSON: Perceiving Speech and Perceiving Words	99
WILLEM J.M. LEVELT: Spontaneous Self-Repairs in Speech: Processes and Representations	105
5. Speech Technology in the Next Decades	119
J.L. FLANAGAN: Speech Technology in the Coming Decades	121
J.N. HOLMES: Speech Technology in the Next Decades	125
SEMI-PLENARY SESSIONS: SYMPOSIA	141
Symposium 1: Semantics, Syntax and Prosody	
Chairman: ILSE LEHISTE	
Panel members: E. Gårding, P. Martin, A. Cutler, V. Fromkin	143
Symposium 2: Units in Speech Synthesis	
Chairman: J. ALLEN	
Panel members: O. Fujimura, J. Holmes, R. Carlson, B. Granström, J. Pierrehumbert	151
Symposium 3: Models of the Larynx	
Chairman: C. SCULLY	
Panel members: G. Fant, I.R. Titze, M. Hirano, F. MacCurtain	157
Symposium 4: Auditory Analysis and Speech Perception	
Chairman: A. FOURCIN	
Panel members: A. Risberg, J.M. Pickett and S.G. Revoile, R.J. Ritsma and J.W. Horst, J.L. Goldstein	171
Symposium 5: Phonetic Explanations in Phonology	
Chairman: J.J. OHALA	
Panel members: E. Fischer-Jørgensen, K. Kohler, L. Goldstein	175

Symposium 6: Human and Automatic Speech Recognition	
Chairman: D.H. KLATT	
Panel members: V.W. Zue, S.M. Marcus, M. Liberman, R. de Mori	183
SECTION PAPERS	187
Section 1: Acoustic Manifestations of Speech	189
A.K. IVONEN: Die Hochdeutschen und Schweizerhochdeutschen Betonten Monophthonge	191
K.J. KOHLER: Temporal Control at the Utterance Level in German	197
M. PETTORINO and A. GIANNINI: F_1 Locus and Place of Articulation	201
D. ROSTOLLAND and C. PARANT: The Influence of Voice Sound Level on the Duration of French Long Vowels	205
KLAUS C. SCHWEISTHAL, STEPHAN FORSTNER and KURT KOTTEN: Bavarian -a- Vowels: Experimental Investigations on the Comparability of the First Two Formants and of Phonetic Transcriptions	210
L. VALACZKAI: Über akustische Faktoren der Distinktiven Perzeption im Deutschen	215
Section 2: Speech Synthesis	219
P. BADIN and G. MURILLO: An Analysis Method for High Quality Formant Synthesis	221
K. BOLLA: Voxton, Russon: Systems Generating Impersonal Hungarian and Russian Speech by Rule	225
R. BROWN: Relative Importance of Parameters in Voice Similarity Judgment	230
E. FÖLDI: The Analysis of Polish Intonation by Synthesis	233
J.A. GURLEKIAN and H.E. FRANCO: Recognition of a Spanish VV Sequence	237
G. OLASZY: A Phonetically Based Data and Rule System for the Real-Time Text to Speech Synthesis of Hungarian	243
H.W. ZELLE, J.R. DE PIJPER and J. 't HART: Semi-automatic Synthesis of Intonation for Dutch and British English	247
Section 3: Acoustic Analysis and Coding of Speech	253
M. ESKENAZI and J.S. LIÉNARD: On the Acoustic Characterisation of the Oral and Nasal Vowels of French	255
W.J. HESS: Effective Implementation of Short-Term Analysis Pitch Determination Algorithms	263

U.K. LAINE: Analysis and Validation of Higher Pole Correction Function	270
F. LONCHAMPS, J.P. ZERLING and J.P. LEFÈVRE: Estimating Vocal Tract Area Functions: A Progress Report	277
P.J. MARTIN: Real Time Fundamental Frequency Analysis Using the Spectral Comb Method	284
R.A. RASCH: Jitter in the Singing Voice	288
N. VAN ROSSUM and A. RIETVELD: A Perceptual Evaluation of Two V/U Detectors	293
R. SNEPPE and V. WEI: F_0 Behaviour in Mandarin and French: An Instrumental Comparison	299
M. YANAGIDA and O. KAKUSHO: On Difference Operation in Linear Prediction	304
Section 4: Automatic Speech Recognition	311
R.A.W. BLADON, C.G. HENTON and J.B. PICKERING: Outline of an Auditory Theory of Speaker Normalization	313
W. JASSEM: Automatic Segmentation of the Speech Signal into Phoneme-length Elements	318
W. MAJEWSKI and C. BASZTURA: Speaker Recognition in Open Sets	322
M. OHALA: The Machine as an Addressee: When Paralinguistics Fails	326
M. O'KANE: Extensions to the Locus Theory	331
G. RUSKE: Syllable-based Analysis of Spectral and Temporal Features for Automatic Speech Recognition	338
Section 5: Physiology and Acoustics of Speech Production	345
L.J. BONDER: Between Formant Space and Articulation Space	347
R. COLLIER and C.E. GELFER: Physiological Explanations of F_0 Declination	354
B. CRANEN and L. BOVES: Spectral Consequences of a Time-varying Glottal Impedance	361
G.L.J. NIEBOER, H.K. SCHUTTE and T. DE GRAAF: On the Reliability of the Intraoral Measuring of Subglottal Pressure	367
C. SCULLY and E. ALLWOOD: Lung and Larynx Coordination in a Composite Model of Speech Production	372
Y. SONODA: Use of an Optical Position-Sensitive Device for Recording Lip and Jaw Movements in Speech	378

Section 6: Physiological Manifestations of Speech Sounds	383
S.H. AL-ANI and M.S. EL-DALEE: Tafkhem in Arabic: the Acoustic and Psychological Parameters	385
P.J. ALFONSO, K. HONDA and T. BAER: Coordinated Tongue Muscle Activity During /əpVp/ Utterances	390
H. HIROSE, H.S. PARK and M. SAWASHIMA: An Electromyographic Study of Laryngeal Adjustments for the Korean Stops in Syllable-Initial and Final Positions	395
P. HOOLE, B. POMPINO-MARSCHALL and M. DAMES: Glottal Timing in German Voiceless Occlusives	399
L.H. SLIS: Assimilation of Voice in Dutch	404
I. SOLOMON and S.J. SARA: English Diphthongs, [ai, oi, au]	411
Section 7: Psychoacoustics of Speech	415
H. HOLLIEN: Differentiating Between Speaking and Singing Vocal Registers	417
H. HOLLIEN, J.W. HICKS, Jr. and P. HOLLIEN: Motor Speech Characteristics in Diving	423
P. HOWELL: An Acoustic Determinant of Perceived and Produced Anisochrony	429
M.T.M. SCHEFFERS: Pitch and the Perceptual Separation of Simultaneous Vowel Sounds	434
K. SLETHEI: Perception of Speech in a Hyperbaric Helium-Oxygen Atmosphere	439
H.G. TILLMANN, L. SCHIEFER and B. POMPINO-MARSCHALL: Categorical Perception of Speaker Identity	443
Section 8: Perception of Phonemes	449
L.E.O. KLAASSEN-DON and L.C.W. POLS: The Role of Coarticulation in the Identification of Consonants	451
L.C.W. POLS and I. STOOP: Confusions between Dutch Consonants under Various Conditions of Noise and Reverberation	455
L. SCHIEFER and K. KOTTEN: Amplitude Envelope and the Perception of Breathy Stops in Hindi	459
M.E.H. SCHOUTEN and L.C.W. POLS: Identification of Intervocalic Plosive Consonants: the Importance of Plosive Bursts vs. Vocalic Transitions	464
H.G. TILLMANN, B. POMPINO-MARSCHALL and U. PORZIG: The Effects of Visually Presented Speech Movements on the Perception of Acoustically Encoded Speech Articulation as a Function of Acoustic Desynchronization	469

Section 9: Word Perception	475
M. MARTIN: Listening for Phonemes while Reading	477
S.G. NOOTEBOOM and G.J.N. DOODEMAN: Speech Quality and the Gating Paradigm	481
I.B. OTTEVANGER: The Detection of Mispronunciations and the Influence of Context	486
V.J. VAN HEUVEN and M.Ch. DUPUIS: Effects of Anticipatory Coarticulation on Vowel Detection in Meaningful Words	491
Section 10: Stress and Accent	497
E.A. DEN OS: Extrametricality and Italian Stress	499
M.C. LIN, J.Zh. YAN and G.H. SUN: The Stress Pattern and Its Acoustic Correlates in Beijing Mandarin	504
ANNA A. METLYUK: On the Distinctive Features of Byelorussian Utterance Accents	515
C.W. TEMU: Stress in Standard Swahili	518
S. PAUL VERLUYTEN: Phonetic Reality of Linguistic Structures: the Case of (Secondary) Stress in French	522
Section 11: Temporal Organisation of Speech	527
W.J. BARRY: On the Perception of Juncture in English	529
B. POMPINO-MARSCHALL, H.G. PIROTH, P. HOOLE and H.G. TILLMANN: 'Koartikulation' and 'Steuerung' as Factors Influencing the Perception of 'Momentary Tempo'	537
M. VAYRA, C. AVESANI and C.A. FOWLER: Patterns of Temporal Compression in Spoken Italian	541
Section 12: Communicative Functions of Prosody	547
J.G. KRUYT and S.G. NOOTEBOOM: Acceptability of Accenting and De-accenting 'NEW' and 'GIVEN' in Dutch	549
Z. PALKOVÁ: Syntactic Dispositions as a Factor in Discourse Segmentation	554
J.M.B. TERKEN: The Effect of Accentuation on Comprehension: An Experiment	558
Section 13: Pitch and Intonation	563
M. CRUZ-FERREIRA: Perception and Interpretation of Non-Native Intonation Patterns	565
J. 'T HART and J.R. DE PIJPER: Experiments on the Stylization of British English Intonation	570

T. RIETVELD: Gradations in Pitch Accents?	574
T.I. SHEVCHENKO: An Analysis of Regional Variation in English Intonation	580
C.W. TEMU: Surface Tones in Chaga: Towards a Tonetic Classification	583
Section 14: Speech Acquisition	587
N. BACRI: Pitch and Timing Cues in Speech Intelligibility: the Case of Child Language	589
S. EGUCHI and M. SUTO: Audio-Vocal Self Control Functions: Pitch Fluctuations and Audio-Vocal Pitch Matching	595
V. HAZAN and A.J. FOURCIN: Interactive Speech Synthesis in the Study of Normal Perceptual Development	600
M.F. PEDERSEN, E. MUNK, P. BENNET and S. MOLLER: The Change of Voice during Puberty in Choir Singers Measured with Phonetograms and Compared to Androgen Status together with Other Phenomena of Puberty	604
Section 15: Sociophonetics	609
D.L. EVERETT: Sociophonetic Restrictions on Subphonemic Elements in Pirahã	611
W.P.F. FAGEL and L.W.A. VAN HERPT: Perceptual Description of Long-term Speaker-Characterizing Voice Features by means of Semantic Differential Ratings of Running Speech	615
T. MATSUSHITA: Concentration and Diversification of Sound Changes	619
S. RAMSARAN: Stylistic Variation in R.P.	624
R. VAN BEZOIJEN and L. BOVES: The Relative Importance of Vocal Speech Parameters for the Discrimination of Emotions	628
E. VAN ZANTEN and V.J. VAN HEUVEN: A Cross-Dialect Study of Vowel Perception in Standard Indonesian	634
I. ZHGHENTI: Tendencies in Contemporary French Pronunciation	641
Section 16: Phonetics and Phonology	645
A. LIBERMAN: On the Uses of Complementary Distribution	647
A. STEPONAVICIUS: On the Correlation of Phonetic and Phonemic Distinctions	650
W.H. VIEREGGE, A.C.M. RIETVELD and C.I.E. JANSEN: A Distinctive Feature Based System for the Evaluation of Segmental Transcription in Dutch	654

Section 18: History and Phonetics	661
M.H. BAKALLA: The Study of Vowel Quality by Early Arab and Muslim Phoneticians	663
J. JULIÀ: The Birth of Experimental Phonetics in Spain, Pere Barnils and his Barcelona Laboratories (1913-1933)	667
Section 19: Phonetics and Foreign Language Teaching	671
B.A.G. ELSENDORRN: Production and Perception of English Vowel duration by Dutch Speakers of English	673
J.E. FLEGE: Detection of Foreign Accentedness	677
J. FOKES, Z.S. BOND and M. STEINBERG: Patterns of English Word Stress by Native and Non-native Speakers	682
H. GRASSEGGER: Korrekter Ausspracheunterricht auf auditiver Basis	687
A.R. JAMES: Phonic Transfer: The Structural Bases on Interlingual Assessments	691
E. JASOVÁ: Die Syllabisch-Akzentologischen Modelle der russischen Substantive	696
F. MITLEB: Timing of English Vowels spoken with an Arabic Accent	700
N.J. WILLEMS: English Intonation from a Dutch Point of View	706
Section 20: Speech Pathology and Aids for the Handicapped	711
C. BALTAXE, J.Q. SIMMONS and E. ZEE: Intonation Patterns in Normal, Autistic and Aphasic Children	713
L. HANDZEL: Phono-articulatory Stereotypes in Deaf Children	719
E. HARTMANN and D. VON CRAMON: Acoustic Measurement of Voice Quality in Dysphonia after Traumatic Midbrain Damage	727
A. JAROSZ: A Contribution to the Phonological Pathology of Speech Structure in Children with Impaired Hearing	730
K.E. SPENS and G. PLANT: A Tactual 'Hearing' Aid for the Deaf	733
B. WEISS: Verbal Apraxia in Cases of So-called Broca's Aphasia in the Light of Electromyographic Studies in Vowel Articulation	738
B. WEISS, A. JAROSZ and L. HANDZEL: Bioelectric Activity of the Articulation Muscles in Deaf Children	742
Section 21: Hearing Pathology and Speech	747
C. GÉLINAS-CHEBAT: Hearing Impairment and the Perception of Speech Sounds	749
D. GÜNZBURGER: Accents and their Differential Influence on the Perception by Normally Hearing and Hearing-impaired Subjects	755
P. JANOTA: Auditory Evaluation of the Speech of Deaf Children	760

H.G. PIROTH and H.G. TILLMANN: On the Possibility of Tactile Categorical Perception	764
B. POMPINO-MARSCHALL and H.G. TILLMANN: Dyslexia and Developmental Dysphasia; a Deficit in Processing Rapid Spectral Changes?	769
J.R. SOLOMON: Perception of English Contrastive Stress by Brain-damaged Adults	773
M. VINGERLING: Speech Rate and its Differential Influence on the Perception of Normally Hearing and Hearing-impaired Subjects	778
Section 22: Speech Errors	783
C. FONDA: An Analysis of Pronunciation Mistakes and Second Language Strategy in the Case of Italian and Mandarin Speaking Learners of English	785
List of Participants	789
Index of Contributors	817