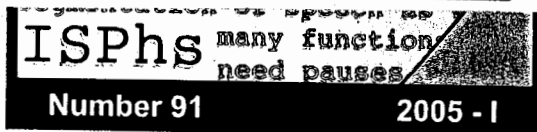


# the Phonetician

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Local J., Ogden R. and Temple R. (editors, 2003)

*Phonetic Interpretation: Papers in Laboratory Phonology VI*

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This volume contains 20 revised versions of papers and commentaries presented at the Sixth Conference in Laboratory Phonology, which was held at the University of York in 1998. (The date on the book itself is 2003; however according to the publisher's Internet site, the book was published in February 2004, but was available only after February 2005. Hence, the late date of this review.) This book is an addition to the series of books named "Papers in Laboratory Phonology", which are the outcome of conferences held in various places with different editors. The guideline of this series is to find the relationship between mental models of linguistic theory (phonology) and the physical nature of speech (phonetics); resulting in the title "Laboratory phonology".

The book is divided into four parts, each containing five papers: Part I: Phonological representations and the lexicon (1. "Interpreting 'phonetic interpretation' across the lexicon", by M. E. Beckman and J. Pierrehumbert; 2. "Effects on word recognition of syllable-onset cues to syllable-coda voicing", by S. Hawkins and N. Nguyen; 3. "Speech perception, well-formedness and the statistics of the lexicon", by J. Hay, J. Pierrehumbert and M. E. Beckman; 4. "Factors of lexical competition in vowel articulation", by R. Wright; and 5. "Commentary: probability, detail and experience", by J. Coleman); Part II: Phonetic interpretation and phrasal structure (6. "Release the captive coda: the foot as a domain of phonetic interpretation", by J. Harris; 7. "How many levels of phrasing? Evidence from two varieties of Italian", by M. D'Imerio & B. Gili Fivela; 8. "Domain-initial articulatory strengthening in four languages", by P. Keating, T. Cho, C. Fougeron & C. Hsu; 9. "External sandhi as gestural overlap? Counter evidence from Sardinian", by D. R. Ladd & J. M. Scobbie; and 10. "Commentary: Consonant strengthening and lengthening in various languages", by J. Harrington); Part III: Phonetic interpretation and syllable structure (11. "On the factorability of phonological units in speech perception", by T. M. Nearey; 12. "Articulatory correlates of ambisyllabicity in English glides and liquids", by B. Gick; 13. "Extrinsic phonetic interpretation: spectral variation in English liquids", by P. Carter; 14. "Temporal constraints and characterizing syllable structuring", by K. de Jong; and 15. "Commentary: some thought on syllables: an old fashioned interlude", by P. Ladefoged); and Part IV: Phonology and natural speech production: tasks, contrasts and explanations (16. "The interaction of the phonetics and phonology of Gutturals", by B. A. Zawaydeh; 17. "Pitch discrimination during breathy versus modal phonation", by D.

Silverman; 18. "The phonetic interpretation of register: evidence from Yorùbá", by K. Hayward, J. Watkins & A. Oyètádé; 19. "Speech rhythm in English and Japanese", by K. Tajima & R. F. Port; and the last paper, 20. "Commentary: on the interpretation of speakers' performance", by G. J. Docherty).

The introduction, written by the editors, includes a discussion of the motivation for the conference, an explanation of its multi-disciplinary nature, and summaries of the contributions, showing their relationships both to one another and to the structure of the conference as a whole. The last paper in each part contains a commentary on the papers in the group or on most of them: Paper 5 comments on papers 2-4; paper 10 comments on papers 7-9; paper 15 comments on papers 12-14; and paper 20 comments on all the papers in the group, papers 16-20.

The common goal of all the papers is to bring phonological issues into the laboratory, and by this to root "phonology in the concrete world of what people/speakers do when they produce and perceive speech" (Introduction, p. 3) in an attempt to reconcile the intellectual streams of phonology and phonetics. The papers are indeed very diverse and use a wide range of laboratory and instrumental techniques to analyze the production and perception of speech: acoustic analysis; articulatory analysis using laryngography, laryngoscopy and electropalatography; measuring reaction times to cross-spliced stimuli; perceptual simulation by training a recognition device. The papers are based on various languages, including Arabic, English (British and American), Danish, French, Italian, Korean and Yorùbá.

The book has a uniform theme and is nicely organized, with numerous clear charts and tables. The papers are all printed in the same font, and treated as chapters in a book, and therefore there is a long list of references that serves all the papers only at the end of the book, followed by two separate indexes for names and subjects. But the outcome of the fact that the authors are coming from various disciplines and have diverse academic backgrounds is that the chapters are still like papers in a journal rather than chapters in one homogenous book with one subject.

Almost every paper is not self-contained, as if the authors wrote to a colleague in their mutual narrow sub-field. For example: the lexical database "CELEX" is mentioned on pp. 61, 67 (x2), 73, but only on p. 210 does Nearey give a reference to "CELEX"; AP (on p. 149), "Venn diagram" (p. 247), and RTR (p. 282) – are mentioned without any explanation (and they are not included in the indexes); also "Ward's method" is mentioned on p. 246 with no reference.

Minor slips like "they are have" (p. 9, 1<sup>st</sup> line), repeated words ("that" on p. 6) or "cosenser" instead of "condenser" (p. 310) can be ignored, but an inconsistency between a description of a sound in the text and the way it appears in a figure and its legend puzzles and confuses the reader; e.g. in the middle of figures 16.3, 16.4 and 16.5 [t s] are written, but they refer to the pharyngealized sounds, so they should be written [t<sup>s</sup> s<sup>s</sup>]. A more serious mistake is the following: There is a contradiction between the text in the last paragraph on p. 284 and the legends of Figures 16.2 and 16.3, as well as the text on p. 286. The outcome of the text on p. 284 is that [s<sup>s</sup>, k<sup>s</sup>, h, ʔ] have a wider pharyngeal width than those of [s, x, h, ʔ] (by the way, [s<sup>s</sup>] is transcribed s by mistake). This is contrary to the experimental result, which concludes clearly that pharyngeals and pharyngealized sounds have a narrow width in [s<sup>s</sup>]

the pharynx (Fig. 16.2 and p. 287-290). This mistake is probably the result of a switch between the two groups of symbols on p. 286.

Such mistakes could be grouped into editorial and proof reading mistakes, but in a few papers I found methodological inaccuracies and unacceptable assumptions. Docherty raised such issues in his commentary to the 4 papers in his part (paper 20), but some of his critiques apply also to a few other papers in the book. Space limitations prevent elaboration on all issues, therefore I will limit myself to four major comments on only one paper –paper 16, by Zawaydeh.

The first comment relates to the grouping together of phonetic terms of the physical nature of speech with phonologic terms, which belong to the mental models of linguistic theory. In Zawaydeh's paper uvulars, pharyngeals and emphatics are clustered as one group not less than eight times, and this is not an acceptable mixture: Uvulars and pharyngeals are phonetic terms for "places of articulation", while "emphatics" is a phonological cover term. In Semitic languages, emphatics are considered a phonological group realized differently in various languages. In Arabic, for example, emphatics are realized as pharyngealized sounds, whereas in the Semitic language of Ethiopia, they are realized as ejectives (glottalized) sounds (see Catford, 1977: 70; Ladefoged, 1971: 25-28; Laufer & Baer, 1988: 182; Rabin, 1972, p. 1153; Ullendorff, 1955: 151-157).

The second comment relates to data collection and its naturalness. Scientists will prefer to base their linguistic conclusions on the use of natural speech, the size of a reasonable database, and a reasonable number of subjects. The study reported by Zawaydeh fails in these respects: It is based on a limited list of nonsense words of the form ?aCa, produced in citation form under laboratory conditions, and the endoscopic experiment was based only on part of this list (only 10 nonsense words, repeated 3 times) by a sole subject, the author himself (p. 283). Citation forms of nonsense words in a very limited context are not representatives of a language, and therefore, unless this study is supported by more naturally produced speech one should hesitate to accept the conclusions as representing the Ammani-Jordanian dialect. (Such caution is exemplified in other papers in the book, such as the paper by Hayward et al; see e.g. p. 318 - they found interesting relationships between voice quality and tone in Yorùbá, but they were reluctant to make final conclusions, and wish to base them on "much more research, based on more languages" (p. 320).)

My third comment relates to the interpretation of the endoscopic images. Zawaydeh claims that it is hard to determine the role of the aryepiglottic folds from the endoscopic images (p. 292, note 6), and she speculates that in Arabic, laryngeals are articulated through a constriction at the level of the aryepiglottic folds, and hence F1 is raised (p. 287). But from the two pictures of the laryngeals [h, ʕ] that she herself presents (p. 285, right side of figure 16.2), one can see that the constriction is not made at the aryepiglottic folds. In the picture of [h], the narrow opening between the vocal folds is clearly seen, and as nothing obscures this constriction from the lens, we can be sure that (a) the narrowest constriction is in the glottis, and (b) that there is no other base of articulation at the level of the aryepiglottic folds. Her own evidence rules out her supposition. Anyhow, she should have tested the consonants in the context of various vowels. If she had taken pictures of /h/ in the vicinity of high front vowels, the epiglottis would not have blocked the view, and she would be able to see the larynx and the aryepiglottic area much better. As is well known, the

epiglottis is retracted in low vowels (e.g. Laufer & Condux, 1985: 59-60; Russel, 1931: 39; Wilson, 1976), and this also results in a raised F1.

This brings us to the fourth comment, which relates to the acoustic interpretation of speech. Zawaydeh hypothesizes "that all guttural sounds, including the laryngeals, have a high F1" (p. 287), and she "extracted the formant frequencies at the temporal center of the second vowel" (p. 288). After assuming that some might argue that it is not right to rely on the results of tokens of low vowels, as "laryngeals would not have formant transitions, hence the high F1 is the F1 of the low vowel itself", She conducts another acoustic experiment of read nonsense words of the form <sup>lies</sup> ~~lies~~, and again she extracts the formant frequencies of the middle of the second vowel (p. 288). Measuring F1 of the following vowel may tell us something about coarticulation between sounds and how vowels are influenced by consonants, but if the aim is to find features of the pharyngeals and laryngeals, one cannot rely on these measurements. It is well known that the formant transitions to and from the consonant give us the information of the place of articulation (e.g. Ladefoged 1993: 199-208; Liberman et al, 1956; Liberman et al, 1959). Therefore, one keeps wondering why Zawaydeh did not measure the consonants themselves and their transitions from the vowels and to them. (By the way, even from her own data, represented in figure 16.5, it is difficult to come to her statistical conclusions on F1. See also Dochery, p. 351.)

Finally, laymen in phonetics and phonology will find it difficult to comprehend the book as a whole. Specialists in narrow areas of speech science can find various papers that will enrich and deepen their knowledge both in phonetics and in phonology.

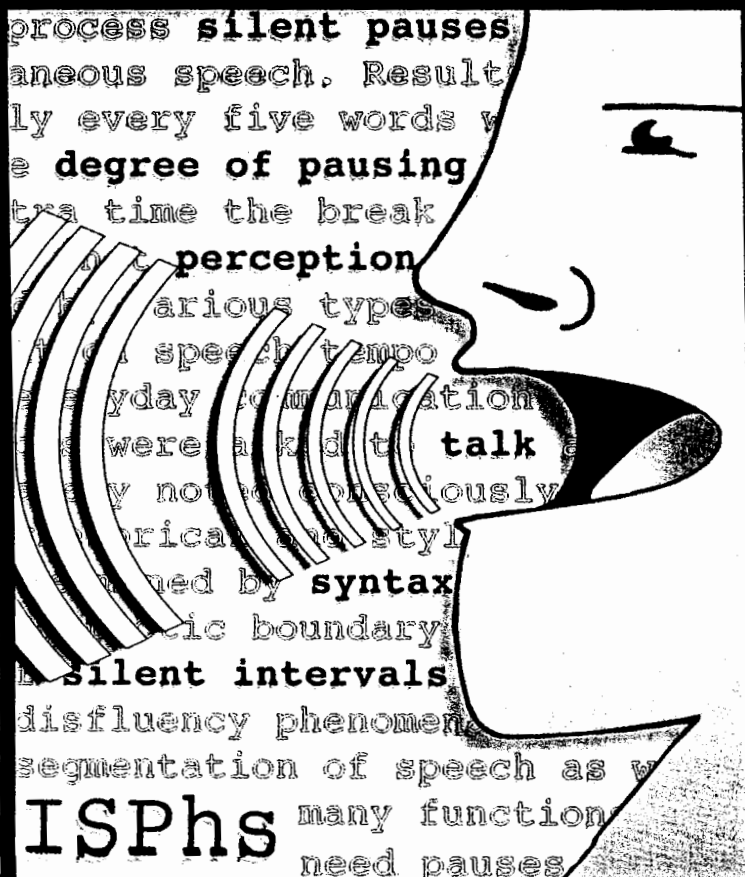
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