

**Comment on S. Singh's rejoinder to the review of his Distinctive Features: Theory and Validation [J. Acoust. Soc. Am. 62, 276–277 (1978)]**

[Morris Halle](#)

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perseding man's possibilities in both the auditory and productive domains" (p. 144 of the book under review).

Not only does Professor Halle distort this author's philosophy, he also has taken quotes out of context, particularly out of the Introduction, without acknowledging the further elaboration of the issues in the body of the text. For example, Halle takes exception to this author's very early deliberations (p. 5) regarding the articulatory, acoustic, and perceptual reality of distinctive features. Had he delved further into the book, and not arbitrarily chosen to attack a statement meant only to nudge the readers' interest in the distinctive feature concept, he would have found a lengthy treatment of Place of Articulation, including a discussion of the feature systems in Jakobson, Fant, and Halle [*Preliminaries to Speech Analysis: The Distinctive Features and Their Correlates* (MIT Press, Cambridge, MA, 1951)], Halle ["On the basis of phonology," In *The Structure of Language: Readings in the philosophy of language*, edited by J. A. Fodor and J. J. Katz, Prentice-Hall, Englewood Cliffs, NJ, 1964] and Chomsky and Halle [*The Sound Pattern of English* (Harper & Row, New York, 1968)]. (For this discussion, see pp. 90-95 and Table 4-2 of the book under review.) Acoustic phonetics is also elaborated (pp. 34-54 for consonants and pp. 78-80 for vowels of the book under review) and not dismissed in one sentence. Halle defends (p. 802 of review) Chomsky and Halle's (1968) description of features in articulatory terms by stating that this was

purely for "expository convenience." It was also strictly for "expository convenience" that this author chose to enumerate in the Introduction only those categories of articulation and acoustics with which most readers may be already familiar. Halle also disagrees regarding this author's introductory differentiation between vowels and consonants. Despite exceptions cited by Halle, it cannot be denied that it is "natural" for vowels to have a vibratory source whereas for consonants this is not necessary. Vowels are considered unmarked for voicing whereas consonants may either be marked or unmarked for voicing.

Professor Halle confuses the reader not only about the book under review, but also about his own work and his colleagues' by careless errors in referencing. He writes "Jakobson, Fant, and Halle [*The Sound Pattern of English* (Harper and Row, New York, 1968)]" and "Chomsky and Halle [*Preliminaries to Speech Analysis* (MIT, Cambridge, MA, 1972)]." In these references authors, publishers, and book titles do not jibe with reality.

In summary, Professor Halle has distorted the theoretical stance of the book under review, and has failed to do justice to possible contribution of this text in applying the distinctive feature concept to practical work in the areas of speech pathology and audiology. [Acknowledgment is due to Dr. Emily Kirstein for her valuable assistance in preparing this response.]

## Comment on S. Singh's rejoinder to the review of his *Distinctive Features: Theory and Validation* [J. Acoust. Soc. Am. 63, 277-278 (1978)]

Morris Halle

*Department of Linguistics and Philosophy, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139*  
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The author comments on Sadanand Singh's rejoinder to the author's review of Singh's book.

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In his rejoinder to my review [J. Acoust. Soc. Am. 62, 801-802 (1977)], Professor Singh states that in my remarks on morphophonemic variation I covered material which I assume "everybody knows." In fact, the phrase "everybody knows," though put in quotes by Professor Singh, does not appear in my review. What I wrote was "As everybody knows there are at least three distinct plural suffixes" (in English). I then devoted several hundred words to arguing that in order to state the rule governing the distribution of these three suffixes it is crucial to make reference to phonemes and distinctive features. Since there are dozens of

similar rules in almost every natural language, each one requiring reference to phonemes and distinctive features, I concluded that phonemes and features are linguistic universals. And this conclusion, the core of my review, is hardly something that "everybody knows."

It is one of the weaknesses of Professor Singh's approach that he is apparently of two minds about the validity of this conclusion. On the one hand, he claims both in the book and in his rejoinder to have reached the same conclusion as I have. Yet, on the other hand, he insists just a few sentences later in the rejoinder "that

this is just one model, still subject to empirical test, and that alternative modes are available." Thus, Professor Singh regards the model of language in which features and phonemes play a central role as just one among several more or less equally plausible alternatives, while I have tried to argue—in my review and elsewhere—that the evidence for this model is so overwhelming that all other models must be regarded as unlikely possibilities. I am well aware of the difficulties that the phonemes and features model has encountered in attempting to account for certain perceptual and articulatory facts. These difficulties, however, are rather small when compared to those that every model lacking phonemes and features encounters in trying to account for the most elementary linguistic fact, e.g., the plural rule of English.

Professor Singh complains that in addition to distorting his philosophy I also take "quotes out of context, particularly out of the Introduction without acknowledging the further elaboration of the issues in the body of the text." I note that no quotes were taken "out of the In-

roduction" for the simple reason that no chapter titled Introduction is to be found in the book. I find it rather unusual that in order to "nudge the readers' interest" an author would make, without warning, assertions on p. 5 that he knew to be contradicted by later material. In fact, the passage on p. 89 quoted in my review in another connection is consistent with the assertion on p. 5. The remarks from p. 144 quoted by Professor Singh in his rejoinder were opaque to me when I first read them and remain so to this day.

Professor Singh's response to my criticism of his characterization of the difference between vowels and consonants is unsatisfactory. The examples I cited are counterexamples to his characterization and effectively invalidate it. Professor Singh's response does not face up to this fact.

As for the "careless errors in referencing" with which I am being charged at the end of the rejoinder, I have already dealt with them in an erratum notice that appears on p. 282 in this issue of the *Journal*.

## Condenser electret hydrophones

C. Hennion and J. Lewiner

Laboratoire d'Electricite Generale, Ecole Supérieure de Physique et de Chimie Industrielles, 10, rue Vauquelin 75005 Paris, France  
(Received 16 September 1977)

Condenser electret transducers, which are greatly used in the aerial field, have not yet been developed for underwater acoustics. In this paper we describe various condenser electret hydrophones using multisupported foils. Sensitivities as high as 1 mV/Pa, i.e., -180 dB (*re* 1 V/ $\mu$ Pa) have been obtained, from a fraction of 1 Hz up to 10 kHz. The pressure level equivalent to noise level is below the sea-state zero level.

PACS numbers: 43.88.Bs, 43.30.Yj

### INTRODUCTION

Since the description by Sessler and West<sup>1</sup> of the electret condenser microphone, many efforts have been devoted to the development of such systems. These devices have a good sensitivity; they have many advantages as compared to other microphones, particularly resulting from the fact that they can be done with polymeric materials. Many authors have developed structures in order to improve the quality of these transducers; they all use the idea introduced by Sessler and West<sup>2</sup> to support the foil in many points.

In this paper, we will describe condenser electret hydrophones with multisupported foils and present the sensitivities and bandwidths obtained for various designs.

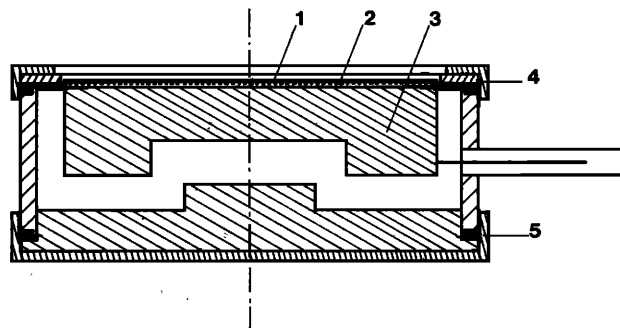


FIG. 1. Cross section of a condenser electret hydrophone; the electret (1) is supported by a dielectric mesh (2) placed against the back electrode (3). The mechanical tension of the membrane can be changed by screwing the caps (4) and (5).