

Review of J. W. F. Mulder, *Sets and Relations in Phonology: An Axiomatic Approach to the Description of Speech*, Oxford, Clarendon Press/Oxford University Press, 1968, xv + 259 pp.*

Arnold M. Zwicky

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This book, a revised version of the author's Oxford doctoral thesis of 1966, sets forth a theory of phonology along the lines of Martinet's functionalism, with application to the description of Pekingese.¹ Mulder proposes as well to fulfill the promise of the work's subtitle, via an axiomatization of the principles of opposition and double articulation, and (in accordance with the main title) to ground certain central concepts of phonology in the mathematical theory of sets. Still another concern appears in a sketchy introductory essay on the philosophy of science as Mulder sees it. These diverse interests--philosophy of science, exposition of theory, axiomatization of theory, set-theoretic formalization, and description of Pekingese--are poorly integrated. The axiomatization and formalization, in particular, are only marginally relevant to the other sections;² moreover, the appearance of rigor in these two sections is largely illusory, and the notation of set theory is more decorative than functional.

In brief, this work says very little that is new, and it does not illuminate the material treated. Despite a concern for empirical

validation expressed in the introduction, Mulder makes no serious attempt to evaluate the consequences of his assumptions or the adequacy of his descriptions. It turns out that "the English plural morpheme has only two regular phonological forms, i.e. /S/ [the archiphoneme /s/ \cup /z/, i.e. the set of features common to both /s/ and /z/ and /z/ on the one hand and /iz/ on the other. The prediction of /z/ and /iz/ belongs to the domain of morphophonology; the prediction of /S/ belongs to phonology proper" (196), but Mulder never asks whether this result is of more than terminological interest. And again (203-4): the English verb link is transcribed /liNK/, where /N/ = /n/ \cup /ŋ/ and /K/ = /k/ \cup /g/, while linked and links are transcribed as /liŋt/ and /liŋs/, respectively, with no discussion of the merits of this description. Occasionally there are hints of a more interesting approach, as when Mulder observes that "in some languages, for example in Japanese, one does not want to call whole syllables 'phonemes,' and in some other languages, for example Pekingese, one does not want to have merely two phonemes for most of the syllables" (26)--the important issue being, of course, why one might want one or the other.

Although in general the book is technically correct, if unexciting, Mulder warrants special censure for the obscurity of his axiomatizations, which have all the faults of Bloomfield's celebrated postulates (vast numbers of undefined terms, weak statements of axioms, failure of theorems to follow from the axioms, tautologies masquerading as theorems). From informal statements of the two basic axioms--"language is a system of oppositions" and "language has a

double articulation" (7)--which are terse but capable of explication, he moves through three difficult preliminary definitions ('functional' for "separately relevant to the purport of the whole of which it is a part," 'system' for "set of functional entities," and 'semiotic system' for "any system of conventions for communication") to the following opaque, and perhaps tautologous, reformulations of the axioms: "All elements in semiotic sets are functional" and "Semiotic systems may [or may not?] contain complex elements which can be articulated into elements which have both form and meaning or elements which have only form" (10). One looks forward to a presentation of Mulder's analysis of Pekingese (or English or Dutch, for that matter) in which issues of adequacy are recognized and from which these regrettable axioms and all ornamental mathematics have been excised.

Footnotes

¹The work of reviewing was supported in part by the 1969 Advanced Research Seminar in Mathematical Linguistics, sponsored by the National Science Foundation through a grant to the Center for Advanced Study in the Behavioral Sciences, Stanford, Calif., and held at the University of Illinois.

²Indeed, an early version of the set-theoretic chapter was published separately as Some operations with sets in language, Foundations of Language 1.14-29 (1965).