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DAVID NASH

See also Chomsky, Noam; Configurationality; Sapir, Edward; Thematic Structure

Halle, Morris

Morris Halle can be called the father of the modern study of speech sounds (i.e. phonological and phonetic theory). He was the central figure behind the development of Generative Phonology, and has had a significant impact on the study of word structure (morphology). In addition to his intellectual stature, Halle's influence as an educator is profound. He has taught and advised many of the leading figures in phonology today, including those who have proposed competing theories.

Halle began his study of structural phonology under Roman Jakobson, first at Columbia University, and later at Harvard. In his early work with Jakobson and in collaboration with Gunnar Fant, Halle started his career by questioning the idea that phonemes, i.e. sound units roughly corresponding to alphabet letters, function as the basic cognitive units in the processing of speech sounds. Jakobson et al. (1951), in the spirit of work done in the Prague School of linguistics, claimed that phonemes are themselves divisible into smaller units, so-called 'distinctive features', which capture articulatory and acoustic characteristics of speech sounds. For example, the distinction between the word *pat*, pronounced [pæt], and *bat*, pronounced [bæt], does not lie in some categorial distinction between the cognitive units /p/ and /b/, but in the fact that only the latter is pronounced with vibrating vocal cords. In later work, Halle and his students developed hierarchically organized models of feature systems to capture the fact that some features seem to be more prominent than others in the sound systems of specific languages.

While working on his dissertation, Halle began working with researchers at the Research Laboratory of Electronics (RLE) at the Massachusetts Institute of Technology. He later began teaching in the Modern Languages department there. In the mid-1950s, Halle was a driving force behind the move to develop a linguistics program at MIT. Part of building up this program included hiring Halle's collaborator and colleague Noam Chomsky. Taking a page from Chomsky's syntactic work, Halle claimed that phonological information is not merely perceptual discrimination and articulatory action, but is a cognitive system with its own set of principles. These principles form the foundation of Generative Phonology, so-called because it was assumed that all speech sounds could be *generated* on the basis of a finite set of principles or rules. The classic book of Generative Phonology is Chomsky and Halle's (1968) *The sound pattern of English* (SPE). Classical Generative Phonology assumes that there are two levels of phonological information: the underlying or base form of a word and the surface or phonetic form. The underlying form is mapped to the phonetic form by a series of ordered generative rules.

Consider, for example, the pronunciation of the plural suffix *-s* in the words *dogs* [dagz], *cats* [kæts], and *glasses* [glæsəz]. The underlying form of this plural suffix is posited to be /z/. The phonetic form of the noun-suffix combination is generated via two rules.

The first rule states that a consonant is devoiced, i.e. pronounced without vibrating vocal cords, when it follows a voiceless consonant. The second rule, called

epenthesis, inserts a schwa /ə/ sound between adjacent coronal sibilants.

The effect of these rules is seen in the following derivations of the words mentioned above:

<i>underlying representation</i>	/dag/ + /z/	/kæt/ + /z/	/glæs/ + /z/
<i>epenthesis</i>	—	—	glæsəz
<i>devoicing</i>	—	kæts	—
<i>phonetic representation</i>	[dagz]	[kæts]	[glæsəz]

It is argued that epenthesis must apply before the devoicing rule, since applying them in the other order would result in an incorrect form *[glasəs], as the final /s/ of *glass* is a voiceless sound, and the /z/ would be devoiced when adjacent to it:

<i>underlying representation</i>	/glæs/ + /z/
<i>devoicing</i>	glæss
<i>epenthesis</i>	glæsəs
<i>phonetic representation</i>	*[glæsəs]

Besides applying the theoretical framework of generative grammar to sound systems, *The Sound Pattern of English* also provides one of the most complete discussions of English phonology so far.

Metrical theory (or the study of stress) forms another important strand in Halle's research program. SPE contained the first serious description of English word stress in terms of predictable rules. Building upon the success of autosegmental phonology, in more recent years, Halle applied a notion of autosegmental structure to the study of stress. Throughout this research, Halle has not only examined stress by examining individual words, but also words in phrasal context and in verse.

In generative phonology, the sound system closely interacts with the structure of the containing words. Thus, Halle is an influential figure in the subdiscipline of morphology as well. By applying the familiar generative model to words, he developed the first explicit theory of generative morphology. This theory is a lexicalist theory of word formation (i.e. all the operations of word formation occur in the speaker's lexicon or mental dictionary). Generative morphology consisted primarily of a list of morphemes and a set of word formation rules (WFRs) which built words out of the morphemes. Work in generative morphology eventually evolved into the theory of Lexical Phonology.

In the 1990s, Halle moved away from the lexicalist position his work had previously taken, and developed the theory known as Distributed Morphology (DM), in collaboration with Alec Marantz. Distributed Morphology holds that words are not constructed in the lexicon. Instead, syntactic operations which influence

morphological form can occur before the words are inserted. The theory is "distributed" because what was previously thought to occur in the lexicon is distributed into three grammatical systems: (i) a set of syntactic primitives, (ii) a list of phonological forms and the syntactic environments in which they occur and (iii) a list of sound-meaning pairs. The first system comes into play as the syntactic rules construct the sentence, the second inserts the words into the sentence and the third is the tie between the surface phonological form and the semantic structure of the word or phrase.

The influence that Morris Halle has had on the field of linguistics is extensive. He has personally trained an enormous number of today's leading scholars in phonology, phonetics, and morphology, and his vision and research have led the field to new levels of rigor and understanding.

Biography

Morris Halle was born in Liepaja, Latvia on July 2, 1923; he emigrated to the United States in 1940. He attended the City College of New York in Engineering (1941–1943), served in the United States Army in World War II (1943–1946). He received his M.A. (1948) in Linguistics from University of Chicago and did Graduate work in Slavic Languages at Columbia University (1948–1949) under the tutelage of Roman Jakobson. He did his Ph.D. (1955) on Slavic Languages, Harvard, in a dissertation entitled *the Russian Consonants: a Phonemic and Acoustical Investigation*, supervised by Roman Jakobson. He was an instructor in Russian, North Park College, Chicago 1946–1947; Teaching Fellow in German and Russian, University of Chicago, 1947–1948; Teaching Fellow in Russian, Harvard University, 1947–1948; Assistant Professor of Modern Languages, Massachusetts Institute of Technology (MIT), 1951–1956; Associate Professor of Modern Languages, MIT, 1956–1961; Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford University, 1960–1961; Founder of doctoral program in linguistics, MIT, 1961; Professor of Modern Languages, MIT, 1961–1976; Head, Department of Foreign Languages and Linguistics, MIT, 1976; Head, Department of Linguistics and Philosophy, MIT, 1976–1977; Ferrari P. Ward Professor of Modern Languages and Linguistics, MIT, 1976–1981; Institute Professor, MIT, 1981–1996; and Institute Professor Emeritus, MIT, 1996–present. He was a J.S. Guggenheim Fellow in 1960–1961 and J.R. Killian Jr. Faculty Achievement Award Lecturer at MIT in 1978–1979. He received the Science Prize from Union d'Assurances de Paris in 1991; he also received D.Sc. (hon), Brandeis University in 1988, and DHL, University of Chicago, 1992. He is a member of the

Linguistic Society of America 1951–present, and was Vice President, Linguistic Society of America in 1973; President, Linguistic Society of America in 1974; and Fellow, American Academy of Arts and Sciences 1963–present. Morris Halle is also a member of the National Academy of Sciences from 1988 to present.

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ANDREW CARNIE

See also **Chomsky, Noam; Jakobson, Roman; Morphology; Phonology**

Halliday, Michael Alexander Kirkwood

In his thesis ('The secret history of the Mongols') and in other research, M.A.K. Halliday mainly drew on what he had learned in China, but for his linguistic theory he drew on the work of the British teacher J.R. Firth, who had drawn from his in-depth knowledge of Indian Linguistic tradition. Firth was also influenced by the work of Polish anthropologist Bronislaw Malinowski. All these strands inform Halliday's work, which is unique in its multinational range of influence.

Halliday's work provides a theoretical base, offers descriptive illustration, and projects applied values in almost all branches of linguistics, grammar and

semantics, discourse analysis and stylistics, phonology, sociolinguistics, computational linguistics, language education, and child language development.

The most distinguishing feature of Halliday's work is its *holistic character*. Halliday interprets language as a network of relationships and locates it in a socio-cultural context. For him, 'language' is a resource for making meaning—a *semeogenic system*. He suggests that language is a higher-order semiotic system—one that has a lexicogrammatical level of organization (i.e. a system of wording) and one that is metafunctionally organized (i.e. organized functionally into