

Martin D. S. Braine (1926–1996)

Martin D. S. Braine, whose research on child language acquisition and on both child and adult thinking and reasoning had a major influence on modern cognitive psychology, died of cancer on April 6, 1996, at Columbia Presbyterian Hospital in New York.

Braine was born on June 3, 1926, in Kuala Lumpur, where his father worked. Both his father and grandfather had been civil engineers supervising construction of water projects throughout the British empire, and Braine continued the family tradition when he obtained a bachelor of science degree in mechanical engineering from Birmingham University in England in 1946. Realizing that he did not want to be an engineer, Braine went to Paris, where he attended lectures by Piaget at the Sorbonne; he obtained a bachelor of science degree in psychology from the University of London in 1951 largely on the basis of work he had done in Paris. Moving to the United States, which he realized would have better research support in the postwar period, he obtained a Ph.D. in psychology from New York University under the supervision of Elsa Robinson in 1957. He worked as a researcher at the Downstate Medical Center of the State University of New York and at the Walter Reed Institute of Research and then as a teacher and researcher at the University of California, Santa Barbara before returning to New York University as a professor in 1971. He remained at New York University until his death.

His innovative research in language acquisition inspired interest in early syntax and had a sustained influence on methodology and theory. Braine's research on productivity in early word combinations began when the field was largely behavioristic but when Chomsky was beginning to raise interest. Approaching children's speech like a linguist studying an unknown language, he accounted for regularities of collocation in terms of a "pivot grammar." Addressing meaning as well as position, he argued that children start acquiring language by learning narrow-scope positional formulas that map components of meaning to positions in the utterance. These proposals were critical in starting discussions of the possible universality of the pivot-grammar stage and of the role of syntax, semantics, and pragmatics in children's early grammar and were pivotal to the rise of approaches in which cognitive development in language acquisition is stressed; they also were important for nativist theorists, who interpreted them as compatible with "semantic bootstrapping"—the idea that children exploit correlations between form and meaning to identify instances in language input of innate syntactic constructs like noun, verb, and sentence subject. His research introduced methods still used for syntactic and semantic analyses, for establishing whether a pattern is productive, and for exploiting spontaneous speech data for subtle clues to the categories and rules that are psychologically real.

Braine argued that the empiricist–nativist debate reflects a tension between discovering what is cognitively and linguistically basic (promoting nativism) and accounting for development (promoting learning). Recognizing the need to posit some innate

primitives, he stressed that developmentalists ultimately will have to account for the origins of those innate primitives. His cost-benefit analysis of the balance between primitives and learning explained the origin of some linguistic primitives in terms of learning based on less expensive primitives, for example, basing syntactic categories such as noun or sentence subject on "syntax of thought" notions, like predicate and argument, and on ontological categories, like object and substance.

Braine proposed that a natural language grammar is acquired by mapping utterance input onto a syntax of thought, gradually extracting patterns at various levels of abstraction, and storing rules that are strengthened with repetition and that decay with nonrepetition. Many features of this approach have been incorporated into connectionist models of language acquisition. He applied the syntax of thought notion to reasoning as well as to language acquisition and argued that the sorts of inferences people make while reading and speaking reflect a universal mental logic that is basic to all natural languages. In addition to the predicate/argument structures and ontological categories described in his language-acquisition research, the mental logic includes quantifiers and principles for their scope and operators that deal with negation, conjunction, disjunction, and supposition. The usual strategy of researchers of deductive reasoning had been to use standard logic as a normative model, which tended to reveal ways in which people's judgments differed from standard logic. Braine interpreted such findings as showing not that people lacked logic in reasoning but that standard logic provides a poor model for ordinary reasoning: In his approach, the meanings of natural-language particles such as "all," "any," "some," "and," "or," "if," and "not" are in the inferences they sanction rather than in their truth conditions, and the primary research goal is to discover the universally available repertory of inferences that are made in reasoning and in discourse processing. He and his colleagues demonstrated a large number of logical inferences that are made essentially without error on maximally simple problems.

Braine presented his research in 44 journal articles, including 5 in *Psychological Review*; 21 book chapters; 5 monographs; and 2 edited volumes. Nineteen of his articles and chapters were reprinted in several languages. A book describing his syntax-of-thought research in language acquisition and reasoning is being published posthumously by Lawrence Erlbaum Associates. In all his research, Braine was open to new ideas, and in his enthusiasm and utter lack of dogmatism and self-importance, he was an inspiration and a friend to younger colleagues.

David P. O'Brien
Department of Psychology,
City University of New York

Melissa Bowerman
Max Planck Institute for Psycholinguistics,
Nijmegen, The Netherlands