Robert F. Simmons
In Memoriam

Gordon S. Novak, Jr.[1]

Robert Francis Simmons was born in Quincy, Massachusetts, on May 14, 1925. He married Patricia Enderson in 1950, and they raised five children.

He received his Ph.D. in psychology in 1954 from the University of Southern California. His dissertation was entitled "The Prediction of Accident Rates from Basic Design Features of USAF Aircraft." His first job after graduation was with Douglas Aircraft Corporation in Santa Monica, California, where he developed computerized methods for statistical forecasting of labor costs for building newly designed airplanes.

He began work in 1955 at RAND Corporation and continued in 1957 at its offshoot, the System Development Corporation (SDC), also in Santa Monica, where he was head of the Language Processing Research Program until 1968. The research center that he started at SDC was one of the first in the world to investigate computer processing of natural language. Also while at SDC, he pioneered work on question-answering systems and natural language access to both databases and text files that has had a lasting effect on the field. His research was directed at the construction of SYNTHEX, a computerized system to synthesize human-language behavior. In 1962, he wrote:

> The SYNTHEX project is an outgrowth of a longstanding interest in the conscious processes of humans. After taking the Ph.D. I had an opportunity to read freely among my interests in psychology. Many nineteenth-century explorations of conscious processes of thinking, believing, etc., caught my fancy at that time. William James' *Principles of Psychology* seemed to me to be a high-water mark for psychologists who were interested in the various problems of conscious psychology. The fact that the whole current of psychology has turned to the more rewarding (but to me less inspiring) study of more easily observed behavior seemed to leave a great gap in the study of human behavior. The problem then and now associated with consciousness appears to be the impossibility of formulating experimentally answerable questions. Studying cognitive processes by synthesizing them on computers seems to offer some hope that eventually we may come to understand enough about the difference between organisms and machines that a question about consciousness may be asked.

This computational approach and metaphor for human cognition, which Robert F. Simmons did so much to originate, has had a revolutionary effect on psychology, linguistics, and philosophy and is now emerging as a new discipline called cognitive science.
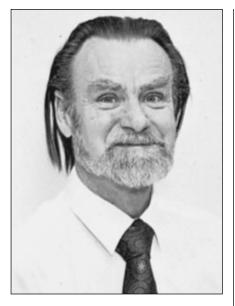
Robert F. Simmons joined the faculty of the University of Texas at Austin in 1968 as a professor of computer sciences as well as psychology. This period in his research was an especially productive one. He published two definitive and beautifully written surveys of the field of natural language processing by computer in 1965 and 1969. With his students, he investigated the use of semantic networks for representation of meaning, and he and his students constructed several systems for understanding and generating natural language using semantic networks. His research on semantic networks in the late 1960s and early 1970s provided both a stimulus and a framework for much of the work on language semantics in the two decades that followed. Simmons's dream was that a person could have "a conversation with a book": The computer would read the book, and then the user could have a conversation with the computer, asking questions to be answered from the computer's understanding of the book. He investigated the semantic structure of discourse, such as encyclopedia articles; produced higher-level grammars for expository text; and wrote programs that could summarize such text.

He later became interested in logic programming and produced programs for natural language processing based on logic programs. This effort culminated with his book *Computations from the English*, which was also translated into Japanese. He did research on explanation of the behavior of mechanisms and on learning of grammars for understanding newspaper stories.

Robert F. Simmons was unique as a romantic man in the classical field of computer science. He bridged C. P. Snow's two cultures—the liberal-art cultures of linguistics and psychology and the hard-science cultures of computer science and mathematics—as few people have. His interests ranged widely, and he read everything. He could discuss Eastern philosophy or enliven a party of computer scientists by reading the Tarot. His house seemed a constant flux of transient cats and people, all welcome.

He was especially gifted as a supervisor of graduate students. He had a marvelous ability to grasp the overview when the graduate student was lost in the details. He generously included his students as co-authors of papers that he wrote. Basically a kind soul, he would nurture stray graduate students and often lead them to successful dissertations. Simmons had a clear and honest insight that cut through surface appearances

Robert F. Simmons, 1925–1994

and went right to the heart of the matter.

When Robert Simmons began teaching at the University of Texas, there was little research support money available for work in AI. Most graduate students had part-time jobs doing something else to support themselves, and there were few possibilities for jobs in the field after graduation. Everyone was there simply because they loved the field and were excited by its prospects. It was a fine time.

Robert F. Simmons taught at the University of Texas at Austin until his retirement in August 1994. He served as acting chairman of computer sciences in 1970 to 1971. In 1985, he was named Quincy Lee Centennial Professor of Computer Sciences. He supervised or co-supervised 24 Ph.D. dissertations, an unusually large number. He was a member of the American Psychological Association and Sigma Xi and was a certified psychologist in California. In 1991, he was named a fellow of the American Association for the Advancement of Science and, in 1994, a fellow of the American Association for Artificial Intelligence. He served as vice-president and president of the Association for Computational Linguistics.

He retired from the University of Texas at Austin on May 31, 1994, as professor emeritus. He died on November 30, 1994, following a lengthy illness. His wife Patricia said, "He was a great companion and a hard-working person. I always enjoyed the time I spent with him." So did we all.

Selected Publications by Robert F. Simmons

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Note

1. A few sentences in this article were written by Donald Walker. Robert Amsler collected the bibliographic data that is collected at the end of this tribute.