GEORGE MINTY

George Minty did his undergraduate work at Wayne State University in Detroit. He taught high school for a short period. During his Army service he was at Fort Monmouth, New Jersey, home of the U.S. Signal Corps, where he learned much about electronics, radio, radar and electromagnetic theory, something that came handy in his later career, when he was always well acquainted with the applied mathematician's art.

His PhD work in mathematics was done at the University of Michigan, under the guidance of Prof. Erich H. Rothe. His thesis dealt with the mathematics of thermodynamics, regarding the work of Caratheodory. He became employed as an applied mathematician at the Research Laboratory of General Motors, in the Detroit area. Perhaps his most significant work during that period was his analysis of the general electrical circuit system, consisting of a finite number of "units" (with arbitrary non-linear characteristics) joined together at junction points, and subject to prescribed external electric signals. He proved mathematically the existence and uniqueness of a solution for the "outputs," using ingenious mathematical methods: He treated first an approximating finite problem with methods of graph- and graph-minimizing theories, and then embedded it in a general functional analysis space to carry out the limit indicated. This work was the source of George's lifelong interest in discrete mathematics, as well as (mostly non-linear) functional analysis.

George came to Indiana University as Professor of Mathematics in 1965 after a series of appointments in Italy, Japan, Ann Arbor, Seattle, Brooklyn and Chicago. He was a passionate teacher. If he knew a subject, he was ready to talk about it to anyone at the drop of a hat, and always remembered the smallest details.

A major conceptual innovation due to George is the theory of certain operators on normed linear spaces, the so-called "monotone" operators. This was independently done by Browder who developed and wrote much on the subject and a now standard result in this field is called the Minty-Browder Theorem. Monotone operators have many pleasing properties useful for proving existence results for complicated non-linear integro-differential equations, etc. Originally the concept arose as a distillation of what George did on electric circuit theory. George was also much interested in the theories of computation, particularly the question of algorithmicity, and efficiency of algorithms.

Born: Detroit, Michigan September 16, 1929
Died: Bloomington, Indiana August 6, 1986
Years at IU: 1965-1986

See also Klee-Minty Cubes