

## G. Grätzer and E. T. Schmidt, mathematicians

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### 1. Personal impressions

Professors George Grätzer and E. Tamás Schmidt are, and have been for decades, amongst the leading experts of lattice theory and, also, of universal algebra. Their longstanding and fruitful collaboration—resulting in 61 important joint papers—is quite unique.

I came across their name via the classical Grätzer–Schmidt theorem in the mid seventies, when I was a graduate student. While most of the classical results were presented in the classroom with detailed proofs, we—the students—were told that the Grätzer–Schmidt theorem is too deep to be given with full proof. This fact gave some legendary fame to Grätzer and Schmidt in our eyes.

A few years afterwards, Professors George Grätzer, although he was not aware of this, and E. Tamás Schmidt became my teachers. Indeed, right after getting my master’s, I started to study Grätzer’s books<sup>1</sup> [GB 1] and [GB 3]. Then, in 1983, Professor Schmidt became my Ph.D. thesis advisor.

It is hard to overestimate how useful the books [GB 1] and, mainly, [GB 3] were in developing my career. While Birkhoff’s “Lattice Theory” made it clear that lattices are quite useful in many branches of mathematics, it was “General Lattice Theory” [GB 3] that taught me that the world of lattices is an exciting, beautiful one. This book cites Lewis Carroll’s Alice: “and what is the use of a book without pictures and conversations”, and does what Alice would like. The very clear style, the nice presentation with about 130 figures, and the carefully selected rich overview of lattice theory made a great impact on me. Naturally, this book became my reference book. I am sure that many colleagues, the majority of those of my age, share my opinion.

Clear presentation is evident in all of George Grätzer’s books, including the latest one, the “proof-by-picture” book [GB 7]. Nowadays that Professors George Grätzer and E. Tamás Schmidt are my friends, the pictorial approach has a quite personal aspect: it was George who taught me how to make diagrams for my papers. In fact, he taught me many other things, ranging from chess to lattices, and his wide knowledge of practically everything and his effectiveness always impressed me.

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<sup>1</sup>The reference numbers prefixed by one or two letters refer to the list of publications in the following article; B stands for books, P for conference proceedings, GS refers to the *Grätzer and Schmidt* list, G to the *Grätzer minus Schmidt* list, and S to the *Schmidt minus Grätzer* list. A prefix within the same pair of brackets is not repeated.

My good relation with Tamás continued after I obtained my Ph.D under his guidance. We have been supported by the same Hungarian research grants for two decades, met many times, and became coauthors. Tamás impressed me with his kind personality and the richness of his mathematical ideas.

## 2. More about Grätzer

George Grätzer was born in Budapest, Hungary in 1936. After graduating in 1959, he started to work at the Mathematical Institute of the Hungarian Academy of Sciences (now named after Rényi), in Budapest. He obtained his Ph.D. from the Hungarian Academy of Sciences in 1960, and lived in Budapest (Hungary) until 1963. Then he became a professor at the Pennsylvania State University. Since 1966 he has been a professor, now distinguished professor, at the University of Manitoba. He is a Canadian citizen and is married with two sons and four grandchildren. His mathematical family is even larger; in particular, he was the thesis advisor of fourteen successful Ph.D. students: Chuan Chong Chen, Brian Davey, Kee Mengh Koh, Harry Lakser, William A. Lampe, Shi-Min Lee, Peter Penner, Craig R. Platt, Bill Sands, Tey Tan, Ivan Rival, Robert Vancko, Dabin Wang, and Günther Wenzel.

As a mathematician, Professor Grätzer has received many honors and awards; I mention only a few. He is a Fellow of the Royal Society of Canada (since 1973), a Foreign Member of the Hungarian Academy of Sciences (since 1997), and was awarded the Doctor of Science (Honoris Causa) by La Trobe University (Melbourne) in 2005. He won the Steacie Prize of the National Research Council of Canada in 1971 and the Szökefalvi-Nagy Medal of Acta Scientiarum Mathematicarum (Szeged) in 2003.

Besides mathematics, he received several first prizes in international competitions in chess compositions when he was young, and his first book [GB17] is a book on (mathematical) puzzles. We readers of AU know and respect Professor Grätzer not only for his mathematical results and fundamental reference books; for us, he is the founder of Algebra Universalis, our favorite journal. He has been the Editor-in-Chief of AU since its inception in 1970. He has done a lot for our large family.

I am glad to note that nowadays Professor Grätzer is as productive as he has always been. Indeed, in addition to [G153–156], which are accepted for publication, he has four new submitted papers (not listed here). The number and depth of his mathematical papers and books are very impressive and made a very significant impact. For example, E. Garfield<sup>2</sup> listed him among the 200 most cited mathematicians in 1978 and 1979 (despite the fact that papers published in Algebra Universalis

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<sup>2</sup>Essays of an Information Scientist **5** (1981–82), 666–675.

were not included). Since many mathematical journals are not monitored by the ISI (Citation Index), it is impossible to know how many times he has been cited. However, to obtain a good estimation, anybody can compare his known total number of citations with the number coming from ISI. I came to the conclusion that Professor Grätzer has been cited at least six thousand (approximately 6,500) times.

To most mathematicians, George Grätzer is known for his books on  $\text{\LaTeX}$  that have sold almost 40,000 copies. The third edition of his best known  $\text{\LaTeX}$  book [GB12] was chosen by the math editor of Amazon.com as one of the top 10 books of the year 2000, out of more than 3,000 books.

### 3. More about Schmidt

E. Tamás Schmidt was also born in Budapest in 1936. After graduating in 1959, he started to work at the (Rényi) Mathematical Institute in Budapest. He obtained his Ph.D. from the Hungarian Academy of Sciences in 1960. So, at the beginning, his life is very similar to that of his friend, George Grätzer.

E. T. Schmidt achieved a higher Hungarian scientific degree, Doctor of Mathematical Science, in 1969. He remained at the Rényi Mathematical Institute until 1991, the last twenty years as the deputy director of the Institute. This position required a lot of administrative work, but his next job required even more. In 1991, he became a professor at the Technical University of Budapest and the head of the Department of Algebra for the period 1991–2001. He reorganized the mathematical departments of several faculties into one Mathematical Institute, and he became the first director of this institute in 1995, a position he retained until 1999. He retired in 2006 and is now a professor emeritus. As a result, his mathematical activity has increased, as witnessed by four recently submitted papers.

Professor Schmidt has had an important role in Hungarian Algebra. He was the thesis advisor of seven Ph.D. students (Hoang Minh Chuong, András P. Huhn, Lajos Klukovits, Kurt Neumann, Sándor Radeleczki, Manfred Stern, and myself). He served on the editorial boards of *Studia Sci. Math. Hungarica* (1971–1992), *Beiträge zur Algebra und Geometrie* (1970–) and *Algebra Universalis* (1991–2007). He was a visiting professor at the University of Calgary (1987–88) and visited the University of Manitoba three times. Thanks to his fluent German, he was a visiting professor at the Martin Luther Universität, Halle (1965–68) and Gesamthochschule Kassel (1980–81).

Professor Schmidt received several honors and awards in Hungary, including the Mathematical Prize (1974) and the Farkas Bolyai Prize (2004) of the Hungarian Academy of Sciences, the Széchenyi Professorial Scholarship (1999–2002), and the Szent-Györgyi Prize awarded by the Ministry of Education (2006).

He is married with two sons and three grandchildren, and he likes to spend a lot of time with them.

#### 4. Finally

I wish happy birthdays to Professors Grätzer and Schmidt! Further, I wish to all of us that they continue proving a lot of new theorems for many years to come.

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