

Happy 80th, Ulf!

My Grenander Number is two, a distinction that goes all the way back to 1958. In 1951, I wrote a paper on an aspect of the Bergman kernel function with Henry O. Pollak (who later became head of mathematics at the Bell Telephone Laboratories). In 1958, Ulf Grenander, Henry Pollak, and David Slepian wrote on the distribution of quadratic forms in normal varieties. Through my friendship with Henry, I learned of Ulf's existence, and when Ulf came to Brown in 1966, I felt that this friendship would be passed on to me. And so it turned out. I had already read and appreciated the second of Ulf's many books: *On Toeplitz Forms and Their Applications* (1958), written jointly with Gabor Szegö.

Over the years, my wife and I have lived a block away from Ulf and "Pi" Grenander. ($\text{Pi} = \pi = 3.14159\dots$) We have known their children and their grandchildren. And I shouldn't forget their many dogs. We have enjoyed their hospitality on numerous occasions, including graduations, weddings, and Lucia Day (December 13). We have visited with them in their summer home in Vastervik, Sweden. We have sailed with them around the nearby islands in the Baltic. And yet, despite the fact that our offices are separated by only a few feet, despite the fact that I have often pumped him for mathematical information and received mathematical wisdom in return, my Grenander Number has never been reduced to one.

On May 7, 2004, about fifty people gathered in Warwick, Rhode Island, for an all-day celebration, from breakfast through dinner, in honor of Ulf's 80th birthday. They had come from all over—the farthest from Taiwan. Ulf's professional accomplishments were described in detail in technical talks. Food and drink were consumed even as anecdotes and memories were hauled out of deep storage. And I must point out here that Jayaram Sethuraman and Hannah Geman both observed that Ulf's marriage to his childhood sweetheart (Emmastina = Pi), whom he himself has called his "secret weapon," has been the greatest blessing to him during his career.

Don McClure, one of Ulf's first PhD students at Brown and later a colleague, presented a mathematical genealogical tree that he had prepared, working backward in seven steps through Harold Cramer and Marcel Riesz to the great Gauss himself. Working forward, the tree displayed the names of several dozen graduate students whose theses Ulf directed. I conjecture that Ulf's "grand-students" and "great-grand-students" are more numerous than the sands of the sea, and it would require a small foundation grant to list them all.

Ulf Grenander, born in Sweden on July 23, 1923, obtained his Fil. Lic. from the University of Stockholm in 1948 and his Fil. Dr. in 1950. Since 1966, he has been in the Division of Applied Mathematics at Brown University, where until his retirement he held the position of L. Herbert Ballou University Professor. Grenander is the author of 14 books and innumerable technical papers

in more than a dozen applied fields. He has received many honors, both in the United States and internationally.

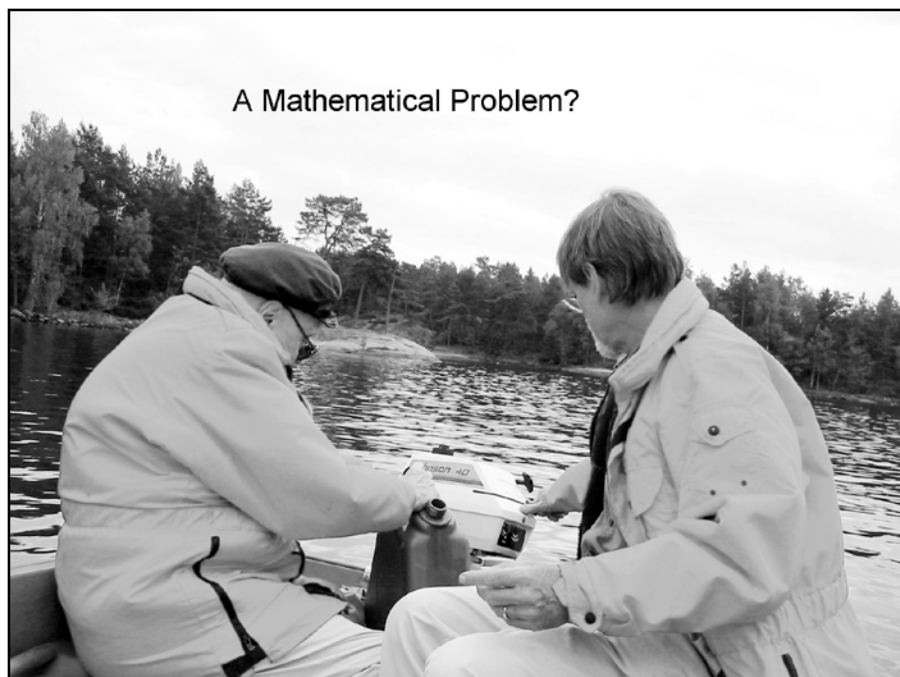
The three major talks at the conference were built around Grenander's three separate statistical careers. In a talk titled "Ulf Grenander: Mega-Career in Pattern Inference and Time Series Analysis," Emmanuel Parzen of Texas A&M University presented a historical view of these subjects, Grenander's role and influence on them, and the ways in which they have intersected his own work.

Stuart Geman, a colleague of Ulf's at Brown, titled his talk "A Personal Account of Ulf Grenander's Second Career" (in pattern theory and abstract inference). Geman constructed his presentation so as to flesh out three lessons to be learned from Grenander's work: (1) when in doubt, compute; (2) clarify with abstraction; and (3) the cognitive and physical worlds are combinatoric.

Michael Miller of Johns Hopkins University, describing Grenander's "third ca-



Ulf Grenander



A Mathematical Problem?

With David Mumford on the Baltic Sea, near the Grenanders' summer home.

reer,” dwelt on applications of pattern theory in creating a computational model of human anatomy.

In his present research, Grenander aims to represent human thinking in pattern theoretic terms, wherein thinking is understood not just as logical processes, but includes guessing, emotions, and beliefs.

All steam ahead, Ulf! And who knows, I may yet be able to reduce my Grenander Number to one.—*Philip J. Davis, Division of Applied Mathematics, Brown University*