

Six



Kevin Bacon



Dr. Paul Erdos



Dr. Pranab K. Sen

Degrees

BY LINDA KASTLEMAN

In the early 1990s, a trivia game called “Six Degrees of Kevin Bacon” was popular on college campuses. Based on the “small world” experiments by social psychologist Dr. Stanley Milgram in 1967, the game’s premise was that any actor could be correlated to Bacon within six steps, by way of successive film co-stars.

The American Mathematical Society (AMS) developed its own version of the puzzle. By entering the name of any published researcher at the AMS Web site, <http://www.ams.org/mathscinet/collaborationDistance.html>, one can determine that person’s “collaborative distance” from another researcher through their co-authors. By entering also the name of Dr. Paul Erdos, the eccentric 20th century Hungarian mathematician who published more than 1,500 academic articles, one can find one’s “Erdos number”—the number of co-authors that separates the mortal academic from the master.

For fun, we plugged in the name of Dr. Jim Grizzle, the second chair of UNC’s Department of Biostatistics, to find his Erdos number was 4. Grizzle co-authored an article with our own Dr. Pranab K. Sen, Cary C.

Boshamer Distinguished Professor of biostatistics, who co-authored another with Zakkula Govindarajulu (of University of Kentucky), who co-authored with Istvan Vincze (a founder of the Mathematical Institute of the Hungarian Academy), who penned something with Erdos.

The AMS also supports the Mathematics Genealogy Project (<http://genealogy.math.ndsu.nodak.edu>), a database of more than 122,000 doctoral degree-holders in math-related fields, along with listings of their advisers and students. The result is a genealogy that preserves the legacy of those who train new generations of academicians in the mathematical sciences.

Sen serves as an interesting example in this exercise, as well. His legacy as an educator extends to the fourth “generation.” For

example, his advisee Malay Ghosh (UNC, 1969) taught Gauri Datta (University of Florida, 1990), who taught Archan Bhattacharya (University of Georgia, 2007). (We invite you to e-mail your family trees and your six degrees of biostatistics to us at sphBIOS@bios.unc.edu.)

Alas, it has taken us six paragraphs to come around to the Bacon, if you will — why we are preoccupied with spheres of influence and begettings — and how any of this impacts upon the UNC Gillings School of Global Public Health or its Department of Biostatistics.

Network theorists in this decade have elaborated upon Milgram’s work on six degrees of separation, noting that shared relationships tend not to be linear, but rather clustered, like hubs of a wheel, with groupings of dynamic people in the center and others extending outward from each hub. Such a mathematical model might have pleased Dr. Bernard Greenberg, the first chair of UNC’s Department of Biostatistics, who set in motion a unique series of partnerships in the state and around the world — partnerships that made his tenure and faculty cutting-edge in the field of biostatistics.

Some of the interconnections may have been serendipitous, but they nonetheless created lasting professional bonds. For instance, as you’ll read elsewhere in this issue:

■ Greenberg knew Dr. John Ashford, professor of statistics at Exeter,

Biostatistics

Dr. Bernard Greenberg



in



Dr. Shrikant Bangdiwala



Dr. Lloyd Edwards

- who had taught Dennis Gillings as a doctoral student,
- who was hired by Greenberg and became a colleague of Gary Koch, a young faculty member at UNC,
- who had met, in (West) Germany, a statistician from Hoescht AG, who needed a careful pharmaceutical analysis done,
- whom Koch introduced to Gillings,
- who, when he started Quintiles as a result of that West German project, hired Koch's well-trained students as part of his research team.

Because he reached out to the best and brightest around the world and drew them to UNC, Greenberg was a harbinger of the School's global influence. Today, members of our biostatistics faculty are active in a dozen countries, including Argentina, Brazil, Chile, Colombia, Ecuador, Egypt, India, Russia and Sweden. Recent projects also have been set in China, Pakistan, Poland, and Uruguay, among other countries. Faculty members serve as visiting professors, establish research collaborations and student exchanges, provide consultation and training, and develop educational programs.

Yet their work, like Greenberg's, is anchored firmly in the state that he felt the School was obligated to serve.

One example of a person simultaneously at home in North Carolina and the world is Dr. Shrikant Bangdiwala, UNC research professor of biostatistics. A fluent Spanish speak-

er and avid traveler, Bangdiwala seems to be everywhere at once—from Stockholm to Santiago—but his efforts also have benefitted powerfully the people of North Carolina. He has authored 120 peer-reviewed publications on biostatistical methods, injury and violence epidemiology, cardiovascular disease and gastrointestinal disorders, all while serving as director of the biostatistical core support units of the Injury Prevention Research Center, the Center for Health Promotion and Disease Prevention, the Cecil G. Sheps Center for Health Services Research, and the Center for Functional Gastrointestinal and Motility Disorders.

UNC's Dr. Lloyd Edwards' efforts on behalf of North Carolina are far-reaching as well. Although aging is one of his areas of research expertise, his delight is to speak with young people about opportunities in the field of biostatistics. Edwards, associate professor of biostatistics at the School, has worked with UNC's Summer Pre-Graduate Research Experience Program, which exposes qualified minority undergraduate students to the graduate research experience. Of six undergraduates he has mentored, five have earned doctoral degrees in statistical sciences.

The six degrees of separation concept extends to our alumni as well. Over the years, numerous UNC biostatistics faculty, including Edwards and Drs. Gary Koch and Larry Kupper, have mentored countless biostatistics students who have gone on to distinguish

themselves in academics, practice and industry. These alumni include:

- **Faculty** at Colorado State, Duke, Emory, George Mason, Georgia Southern, Johns Hopkins, Kansas State, Penn State, the University of Missouri, University of North Carolina, Vanderbilt University and the University of the Philippines;
- **Industry managers and executives** around the world, including at ACS Healthcare Solutions, Amgen, GlaxoSmith-Kline, Hoffman-La Roche, Paraxel, Pfizer, Quintiles Transnational, Rho, Inc., and Schwarz Biosciences;
- **Government agencies** including the N.C. Department of Health and Human Services and the National Institute of Environmental Health Sciences; and
- **Practicing biostatisticians** in math classrooms, and in hospitals and universities including the University of North Carolina, University of Washington, Vanderbilt and Duke University.

As we embrace our new name and ease into our 70th birthday, it is a good time to take stock of our connectedness—with North Carolina; with people around the world who, like us, seek health and safety for themselves and their children; with those whose intelligence anticipated the future and those whose passions propel us into the 21st century.

Someone familiar is no more than six degrees away. ■