that a well-taught arithmetic-centered curriculum may be capable of delivering the concepts of implication and logic. (Whether this transfer is easy or difficult to implement is an empirical question, not examined by Ma.) But let us take a case where a student has successfully learned about logic from a study of arithmetic. Such a student may or may not see that its application to counting problems is part of mathematics. Or that we can harness the same sort of logic to a study of geometry. That is, a narrow focus on arithmetic can create a discontinuity in the student's experience, just the fault that Ma attributes to a "strand" structure of curriculum.

Implementation and Synthesis

Ma's central point, as I read it, is that a strand structure of American curriculum, whatever its strengths, encourages poor implementation. I see an equal but opposite danger with a core-structured curriculum. Especially in America, with our emphasis on testing and accountability, the temptation will be strong to teach students the mechanics of arithmetic without its meaning. And this is certainly possible. There is no evidence that a mastery of standard algorithms or of the notion of place value delivers to students power in logical deduction, any more than there is evidence that strong deductive powers allow students fluency in arithmetic. A faulty delivery of either style of curriculum will not serve students well, and there is no "teacher-proof" way of designing a curriculum.

And here is where the notion of a synthesis becomes useful. My feeling is that we must look at both types of thinkers, hedgehogs and foxes, and find ways to use both. For example, we can find foxes to design curricula with many strands, then hedgehogs to polish each strand. A conscious effort to fit them together would effect a synthesis of the two views.

Ma herself points out that many Chinese are open to working this way: they are looking at American curricula to see what they might learn. Where Ma bemoans this phenomenon, I celebrate it. Reciprocally, the success of her book *Knowing and Teaching Elementary Mathematics* is one indication that some of us are also open to new insights. Let us hope that this sort of synthesis can be accomplished successfully.

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Marc Yor (1949–2014)

Jean-François Le Gall and Jim Pitman

Marc Yor, one of the most distinguished probabilists in the world in recent decades, died suddenly on January 9, 2014, near his home in St. Chéron, France, at the age of sixty-four. He was born on July 24, 1949, in Brétigny-sur-Orge, France. After studying at the École normale supérieure de Cachan, with thesis work under the supervision of Pierre Priouret, he quickly became a researcher at the French Centre National de la Recherche Scientifique (CNRS), then in 1981 a professor at the Université Pierre et Marie Curie, where he remained until his retirement on January 1, 2014.

Marc Yor is world renowned as a prolific researcher in the theory of probability and stochastic processes. He wrote over 400 research articles and ten research monographs. Most of the research articles and several of the monographs were written jointly with one or more coauthors from a list of over 100 collaborators from all over the world (see `http://zbmath.org/authors/?q=ai:yor.marc`) including many of the most prominent probabilists of the era. During the 1980s and 1990s, Marc Yor largely took over from Paul-André Meyer the mantle of responsibility for development of research in probability in France. He was an influential editor of the Séminaire de Probabilités, founded by Meyer in 1967, over a span of twenty five years. In this capacity he set a new tone for the Séminaire as a diverse compendium of contemporary research in probability, with a focus on work done in France, but also welcoming contributions from abroad.

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He also did extensive editorial work for several major probability journals, including the *Annals of Probability* and *Probability Surveys*. He played an irreplaceable role in welcoming the best mathematics students interested in probability and engaging them in research, advising over thirty theses during his career as a university professor. A large number of these students went on to be researchers at the CNRS or professors in France and other countries. Without him, the recent successes of the French probability school, most notably the Fields Medal of his grandstudent Wendelin Werner in 2006, would most likely never have been achieved.

The research work of Marc Yor covered many aspects of the modern theory of probability, but he became most celebrated internationally for his applications of stochastic calculus. Stochastic calculus was born from the work of the great Japanese mathematician Kiyoshi Itô in the 1940s. It was developed by other mathematicians in the 1960s, most notably in France under the influence of Meyer, in what has become known as the Strasbourg School. But it was the work of Marc Yor which most fully demonstrated the potential of this mathematical tool. In his hands, stochastic calculus became a powerful tool for computing features of the probability laws associated with all kinds of stochastic processes. Marc Yor became acknowledged internationally as an extraordinarily talented user of stochastic calculus in combination with other powerful tools of analysis including Fourier and Laplace transforms, which he deployed in virtuoso displays of computational technique.

Among stochastic processes, the one he cherished the most was Brownian motion. Following the works of Paul Lévy, for whom he held a great admiration, Marc Yor wrote a number of famous articles about Brownian motion, which have inspired and continue to inspire generations of researchers. His deep study of local time processes of Brownian motion and continuous semimartingales, the Ray-Knight theorems and related properties of Bessel processes, and the windings of planar Brownian motion, stand out in this respect. His work on these topics made him well known in all corners of the world, where he was always eager to travel—both for short meetings and for longer stays—to share his ideas and mathematical discoveries. Other topics which he developed extensively include enlargement of filtrations, intersection local times, exponential functionals of Brownian motion and Lévy processes, and penalizations.

In addition to his hundreds of articles, Marc Yor was the author of a number of research monographs. Among these, his monograph with Daniel Revuz *Continuous Martingales and Brownian Motion*, based on the DEA courses given by Marc Yor in the early 1980s, is by far the most well known. This work has been phenomenally successful for a mathematical research monograph. It provided great exercises for training the next generation of probabilists, both in France and many other countries, as well as a basis for applications in financial mathematics. In the last part of his career, Marc Yor was interested in this domain, not because of any particular attraction to finance (he was later concerned about the responsibility of mathematicians in the financial crisis), but because he saw a vast field of application for the techniques of stochastic calculus which he had mastered so well.

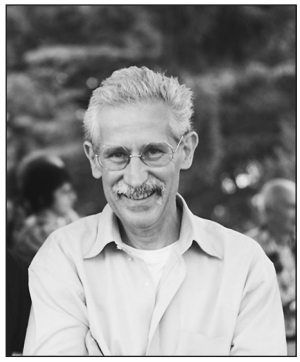

Photo by Murad Taqqu.

Marc Yor

Throughout his career, Marc Yor's work exemplified the highest standards of scholarship and respect for the history of probability and related fields. He wrote extensively and organized meetings around the history of probability, especially the work of Bachelier, Kolmogorov, Doeblin, Doob, Lévy, Itô, and Meyer.

Marc Yor received a number of scientific distinctions: the Humboldt Prize, the Montyon Prize of the French Academy of Sciences in 1986, and the Ordre National du Mérite by the French Republic. He was elected correspondent to the French Academy of Sciences in 1997, then member in 2003. He was also a senior member of the Institut Universitaire de France since 2004.

Two words which best decribe the scientific personality of Marc Yor are without doubt enthusiasm and generosity. Enthusiasm, because he knew so well how to communicate his taste for research and to share the joy of discovery of new theorems and formulas. Generosity, because he helped so many young researchers, publishing with them numerous research articles which everyone knew he had essentially written himself, but for which he was always happy to share the credit.

Beyond mathematics, Marc Yor was a talented soccer player, who played competitively for many years, then coached youth teams in his community with the same dedication he showed in the training of mathematicians. He was devoted to his family, and is survived by his wife Carmel, son Serge, and two daughters Kathleen and Geraldine.