

Boris Rozovsky

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Also present: N. V. Krylov

Dynkin - Please, start from the very beginning

Boris: I was born in Odessa in June of 1945, right after the end of the WWII. After 7 cloudless years of my childhood, I became a student in school # 39. This school is somewhat remarkable, 3 probabilists graduated from this school: Robert Liptser, graduated 10 years ahead of me, myself, and 4 years later, Efim Frid, Krylov's graduate student.

At the beginning of 1960s I went to see "Nine Days of One Year", a movie about nuclear physicists. I found it very romantic and exiting. By the way, I had also studied painting at an art school in Odessa, but it became clear that I was not going to become a second Leonardo daVinci. I was so inspired by that movie, that I decided to become a physicist. My parents, (my father, a geologist; my mother, a physician) were not very enthusiastic about this idea, but still supported me in this endeavor.

I went to Moscow, and tried to get into "MIFI" (Moscow Institute of Physics and Engineering with emphasis on nuclear technologies) At that time (1962), I had no idea about the intricacies of admission policies for Jewish students. "The Jewish quota" was not uniform for all Universities. For example, one could get admitted to Mathematics Department of Moscow State University, but "MIFI" was out of question. I passed the first entry exams with good grades, but at the Physics exam, I got "clipped". I was asked strange questions. Finally I was asked "where is the center of mass of a ring?" I answered "that it is in the center". The argument of my examiners was that "there is nothing in the center of a ring", and they told me that I flunked. I was devastated and could not forget about this for a long time. When I told this story to Dobrushin some 20 years later, he laughed, and said that he was also rejected at the entry exams to the Physics Department of Moscow State University.

I went back to Odessa, and was admitted to the Department of Mechanics and Mathematics of Odessa State University. The Math Department at that time was weak and scandalous. Gavrilov, one of the Faculty members, claimed that he had solved Riemann's problem, found mistakes in Arnold's work, etc.

My unsuccessful endeavor at MIFI affected me badly, and I did not really study. The center of my attention shifted from Mathematics to girls.

At the same time, the Department of Mathematics at Moscow State University increased admissions to 450 new students per year. It was hard to find so much talent, so the Department came up with an experiment of some kind. N. V. Efimov, the Department

Chair at that time, started recruiting successful sophomores from provincial Universities (100 per year).

Back in Odessa, after the last exam of the semester, I was asked to come to the Dean's office. Somebody wanted to talk to me. It happened to be Prof. S., who later in the 70s did not act nicely, but beginning of the 60s was still a liberal time.

Dynkin: S. was Gelfond's student

Boris: He has asked me to solve some problems. Since I had no idea what was at stake, I had no jitters and did it in a hurry, I was late for a date. Next day I learned that I and 5 of my classmate and were invited to transfer to Moscow State.

Krylov: who were the other 5?

Boris: I do not remember all of them or what happened to them. One was Alekseev, he went to Mechanics. The other one, Rodionov (he was an older guy), went back to Odessa because of some family circumstances. Anyway, I started as a second year student, passed some exams easily, and started attending the 2nd part of Analysis taught by Evgeny Borisovich Dynkin.

Krylov- It was a horror class.

Dynkin- It was a second year, right?

Krylov- I was proctoring the exam, they knew nothing.

Boris- Evgeny Borisovich prepared a booklet for this course. At the end of the course it was clear that there was a small gap.

Dynkin.- Yes, I remember.

Boris – I will come back to this later.

Anyway, at the end of the EB's (abbreviation for Evgeny Borisovich Dynkin) course of lectures, I came up to him and told him that I wanted to be his student. EB was not really thrilled with the idea and asked me what I had read on the subject of Probability. In particular, whether I had read his "thick" book (Markov Processes) or his "thin" book "Foundations of Markov Processes". I had not read either of these at the time.

Dynkin- There was a book "Theorems and Problems" which was readable.

Krylov-No, it was later.

Boris- "What have you read?" asked EB. I was very proud to tell him that I did read two volumes of Feller. EB was not really impressed by this.

Dynkin- That's not true, I was always of high opinion about Feller's book.

Boris – Anyway, EB was not really enthusiastic. He told me that he usually takes groups of students, but this year, there was not enough for a group, just me. However, continued EB, “I do have a group of exceptional high school students, so why would not you join this group seminar, and we will see”.

Dynkin- What high school students?

Boris- That group included. Pirogov, Orlov, Gusein-Zade, your daughter, etc.

Dynkin- Oh, I remember, it was School #2.

Boris- And we were trying to solve the “bride’s problem”.

Dynkin- Yes, I remember

Krylov –And Gussein-Zade wrote a paper....

Boris- No, not exactly.

Krylov – It was not at that time,

Boris- No it was at that time, but I made some progress before that. I invented the notion of “vice champion”, which happened to be very important and I was close to solving the problem when EB said, “good, I am taking you to my main seminar”. After that “The Bride” problem was done by Gussein-Zade.

I started Dynkin’s seminar, and at the beginning, I was just writing down unknown words.

Dynkin- Who else attended the seminar?

Boris- Krylov, Freidlin, Wentzell, a couple of older guys, Mazo, Kobrynsky, etc. Then, I was asked to give a talk..... Laplace.....It was an important book, do not remember author’s name.

Dynkin- It is not important.

Boris- For this presentation, I learned almost the entire content of the book and tried to present everything. At the end of my presentation, everybody was asleep.

Krylov- Yes, I do remember.

Boris- After that, I was given my own problem on Martin boundary. I managed to solve a part of it and even got an A.

Next year, for whatever reason, I called EB very late. He said that he is going away, and I did not know what to do. A couple of my friends advised me to join the group of Prof. B. I did, but it was just a waste of time. Then Girsanov took me under his wing. After his tragic death, I became Shiriyev's student.

During my senior year, Shiriyev gave me a very good problem to solve. It was my Master Theses. It was an optimal stopping problem for Poisson process, switching from one intensity to another. I solved it under quite general assumptions. I do not know whether since then, there have been substantial improvements of my result. Kolmogorov liked it, he said: "Good result", and I was accepted to Graduate School. In Graduate School I got lucky, because I played soccer with Krylov.

Krylov – Yes, we did.

Boris – Of course, after the game, we would talk about Mathematics. At these soccer outings I learned a lot. Another stroke of luck was with Zakai's equation. This was just derived in conjuncture with nonlinear filtering. This type of equations was unknown at that time. It was stochastic partial differential equation.

Krylov – Nobody knew anything about it. Does it make any sense or not?

Boris- Yes, so I got involved with this and soon it became very interesting and exiting. Krylov and I have discussed it often, and at the end I learned a lot about this simple type of stochastic PDEs. Eventually, SPDEs became my life long subject of interest.

Dynkin – Did you work with Krylov?

Boris – After I have finished my Ph.D., Krylov and I started working on stochastic PDES in earnest, and wrote 10 or 12 papers together.

Krylov- Was it Vidder's book (on Laplace Transform)?

Boris-yes, that was him.

Boris – Coming back to the story, and trying not to brag too much, the foundation of the theory of stochastic PDEs was laid by us.

Dynkin- Didn't you write a book?

Boris- Yes, formally I was the author of the book. It was essentially a book about our joint effort. I did asked Krylov to be a co-author, but he has refused.

Krylov- I was very busy with fully nonlinear PDEs. It was a very hot subject at that time and I was completely absorbed by it.

Boris – Anyway, coming back to the end of my time at the Graduate school. It was very different atmosphere at the Math Department, the power was grabbed by the “black cardinals”. For me it was time to get a job. Shiryiev and Kolmogorov agreed to keep me at the Kolmogorov’s Statistics Laboratory on “soft” money. I promised to resign if there was no money available.

Krylov-And what would have happened if you did not make this promise?

Boris-I would have quit anyway.

Boris-At the time of job distribution for the fresh PhDs Kolmogorov took part in a long research trip on an oceanographic vessel. Belyaev, whom I abandoned in favor of Girsanov, became a temporary chief of the Kolmogorov Lab. As you know, the job appointments were subject to approval by the Party Committee. The Party Committee of the Math Department had effectively vetoed my appointment, and in the absence of Kolmogorov, there was nobody who could help effectively.

So, I needed another job and I got lucky again. I became faculty at the Department of Statistics established by V. V. Nalimov at the Institute of Advanced Studies for Chemistry engineers and managers. I had worked with him at Kolmogorov’s Lab. My task was to join a small group of linguists (discussing possibilities of computer based translation from foreign languages) and to try to be helpful. It was quite interesting, and I was a witness to their sad conclusion that automatic translation is essentially impossible. As an example, they have used the word “star”. The linguists argued that it has so many meanings that automatic translation was not possible. V. V. Nalimov, came up with a more potent argument. He referred to a cartoon in a popular magazine “Ogonek” depicting two drunkards standing in front of the hardware store window with the notice “Palitura (some sort of a wood stain) is sold only after 11:00 AM”. How could a computer understand that drunkards could drink even this stuff?

And they gave up.... However, computer scientists are doing this quite successfully now, mostly by the brute force.

Anyway my life at this Institute was comfortable. I taught Probability Theory and Statistics. I noticed that chemists were struggling with axioms of Probability. I recalled, EB’s course on Analysis based on axioms for the Mean/Average. I found EB’s old book and trivialized it to a suitable reading for chemists. It was even published by the publishing house “Chemistry” in Moscow. I think, I still have some copies, and I will send it to you. It did improve student’s awareness of the laws of Probability.

Krylov- And Chemistry went up?

Boris - Yes

Dynkin- We have only 2 minutes left.

Boris – OK, and then came the “Perestroika” years. Yes, before that, with Krylov’ help...

Krylov (interrupting)- There was no help, just support

Boris - ...I became a Doctor of Science.

Boris In 1988 we have moved to the States.

Dynkin- It was Gorbachev then.

Boris – Yes, we tried in 1980 (about 3 month after Freidlin applied) , but we could not get an invitation from Israel. But in 1988, everything went fairly smooth,

Dynkin- Where did you go?

Boris – I had 3 offers: one from Cornell, for a quarter; one from Minnesota, for a semester and the third one, from UNC, Charlotte, for a year. I had 3 women and a dog with me, so my choice was obvious, and we went to Charlotte. Two years later I moved to USC, then to Brown. And now I am your guest in Ithaca.

Krylov- But you are just a guest. EB, don't be afraid, he is not staying.

Dynkin- Jokes, jokes. OK, time is up. Let's see what we have.