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THE SIBERIAN PROBABILIST (ON THE OCCASION OF THE 90TH BIRTHDAY OF ALEKSANDR BOROVKOV)

S. S. KUTATELADZE

Abstract. This is a short tribute to Aleksandr Alekseevich Borovkov on the occasion of his 90th birthday.

March 6, 2021 is the ninetieth birthday of Aleksandr Borovkov, an outstanding mathematician who specializes in probability and statistics. The general public respects the latter areas of science but stumbles in understanding them. So the essence of probability and statistics needs short explanation.

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The world is full of events, facts, data, hypotheses, mutations, errors, and chances. The technologies of today bring the infinite flood of bizarre information on each of the humans.

How to distinguish the main trends and envisage the future? How to evaluate open possibilities and differ garbage from treasure? How to defend oneself, the next of kin, and environment from catastrophes and accidents?

These and similar questions have been drifting to the central place among the humankind interests as we manage to meet the minimal requirements of each individual existence. Science, and literature, and art, and religion seek for the answers to the questions. Analysis of trends, foresight, elimination of errors and discovery of hidden regularities in data bases form the objects of research of modern mathematics.

Mathematics is implanted in the life of a human, his or her everyday needs, ideas, convictions, and beliefs. The science of the Age of Enlightenment gave to us the differential and integral calculuses as the tools for determining trends and forecasting the future from trends. The Laplace determinism reflects the idea of the divine creation. Humankind had found another mechanism of prediction—guessing and fortune-telling that bases on chance—long before the Common Era. Attraction to game and greed has always require addressing chances. The epoch of round-the-world travels and risky trading requires to invent tools for defending property from accidents. Astronomical observations and demographical prognoses demanded to control unavoidable errors. Humankind had wanted to calculate chances and data. Mathematics has provided the proper opportunities. Probability theory is the calculus of chances, and statistics is the calculus of data.

The probabilistic and deterministic viewpoints are the two ways of a human's reasoning. Part of interaction between the deterministic logic and chance was revealed by George Boole in the book *An Investigation of the Laws of Thought on Which Are Founded the Mathematical Theories of Logic and Probabilities.*[1] Andrey Kolmogorov revolutionized probabilty and statistics by the new axiomatics based on Boole's ideas. His measure-theoretic approach has enriched the rationale and technology of science which underline deterministic deduction and stochastic argumentation.

We cannot bypass the abrupt turn from the Laplace determinism reflecting the Christian ideas of the unique divine design to the quantum mechanics views of the present day. The double mottoes of Albert Einstein "[God] does not throw dice" and "God tirelessly plays dice under laws which he has himself prescribed"[2] are supplemented with the famous statement of Stephen Hawking: "Not only does God definitely play dice, but He sometimes confuses us by throwing them where they can't be seen."[3]

Search for probabilistic and statistical laws and regularities is one of the most important tasks of modern science. The creative life of Borovkov is devoted to the relevant matters. A student of Kolmogorov, Borovkov has founded his own scientific school in Academgorodok from scratch. Now Borovkov's school is universally renowned and consists of dozens of established scholars. The definitive textbooks

[1] https://www.gutenberg.org/files/15114/15114-pdf.pdf

[2] https://www.livescience.com/65697-einstein-letters-quantum-physics.html

[3] https://www.hawking.org.uk/in-words/lectures/does-god-play-dice

by Borovkov play a key role in this country and are the must in teaching probability and statistics in Novosibirsk State University for more than a half-century.

Borovkov had dreamed to traverse the path of his farther, a famous aircraft designer, but fate decided otherwise. Although Borovkov sometimes regrets his inchoate dream, his journey to the virtuoso mental flights is amazingly successful.

There is one rather exceptional and valuable particularity of Borovkov as a scientific leader and teacher. He is absolutely intolerant to nepotism and parochialism. Only a first-class paper will be published under his name or will receive his positive review. Borovkov is distinguished by his strong convictions as regards appraising colleagues or events. He was one of the initiators of the efforts of a group of academicians which led to rehabilitation of his mathematical grandfather Nikolay Luzin.

Congratulating Aleksandr Alekseevich Borovkov with the anniversary, his colleagues and students thank him for the happiness of being his companions in science and life.

Semen Samsonovich Kutateladze
Sobolev Institute of Mathematics,
pr. Koptyuga, 4,
630090, Novosibirsk, Russia
Email address: sskut@math.nsc.ru