Mačák, Karel
On the origin of the probability calculus. (Počátky počtu pravděpodobnosti.) (Czech)
Zbl 1076.01014
Dějiny Matematiky / History of Mathematics 9. Proague: Prometheus (ISBN 80-7196-089-6). 110 p., open access (1997).

The book is devoted to three publications standing at the combinatorial origin of probability theory. The correspondence between *Pascal* and *Fermat* on dice and stake division problems began in 1654 and led to the famous Pascal's "Traité du triangle arithmétique" (published posthumously in 1665) which is usually considered to be the origin of probability calculus. However, the first printed treatment of similar probabilistic problems is *Huygens*' essay "De ratiociniis in ludo aleae" (1657). It inspired *DeWitt* (1671) and *Halley* (1694) in their studies on the pricing of annuities and life insurance policies, and its importance is best proved by its being reprinted in *Bernoulli*'s "Ars conjectandi" (1713), the true landmark of modern probability theory.

The introduction gives a short account of immediate precursors, contains brief biographies of relevant persons, and exposes dice problems and gambler's problems of points (division problems) with a small excursion to philosophy, combinatorics and actuarial mathematics.

The greatest attention is paid to Huygens' essay, which – in contrast to the other two texts – is much less accessible in libraries. First, it is deeply commented and then reprinted in the original Latin version accompanied by the Czech translation. The next chapter contains a commented translation of that part of Pascal's Traité in which the stake division problem is treated (Usage du triangle arithmétique pour déterminer les partis qu'on doit faire entre deux joueurs qui jouent on plusiers parties) preceded by an introductory part on the arithmetic triangle.

In the last chapter, *Ars conjectandi* is shortly reviewed and then the proof of Bernoulli's theorem (the weak theorem of large numbers) in the original Bernoulli's version is given, commented and supplemented by the reproduction of the corresponding part (Section V of Chapter IV) of Bernoulli's work (the original edition, 1713). The book is closed by an Appendix in which the basic notions of probability theory are briefly recalled and the general formulation of gambler's problem of points is presented and solved.

Reviewer: Ivan Saxl (Praha)

MSC:

01A45	History of mathematics in the 17th century
01A50	History of mathematics in the 18th century
01A05	General histories, source books
60-03	History of probability theory

Keywords:

Bernoulli; Fermat; Huygens; Pascal; dice problem; point problem; probability calculus

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