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11. 11. 2026

Bachelor thesis: The variance of the playing time in Gambler's Ruin (January 2026)

Two players play against each other. Both players stake one Euro per round; player A (B) wins with probability p ($1-p$). Starting with amounts x and $N-x$, the game runs for a random time T until one player is ruined. The classical result is $E[T] = x(N-x)$; the aim of the thesis is to compute $V[T]$. This can be done via generating functions, or somewhat more directly.

- Jiri Andel and Sarka Sudecova. Variance of the game duration in the gambler's ruin problem. *Statistics and Probability Letters* 82(9), 1750–1754, 2012.
- E. Bach. Moments in the duration of play. *Statistics and Probability Letters* 36, 1–7, 1997.
- William Feller. *An Introduction to Probability Theory and its Applications* (3rd edition). New York: Wiley, 1968.