Aalto University

Stationarity of Stochastic Processes

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Goal

- After the session you can recognize visually if a stochastic process is stationary.

Preliminaries: Random Variables

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- Do you know examples of random variables?

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- For a rigorous treatment of probability theory, see (Kallenberg 1997).

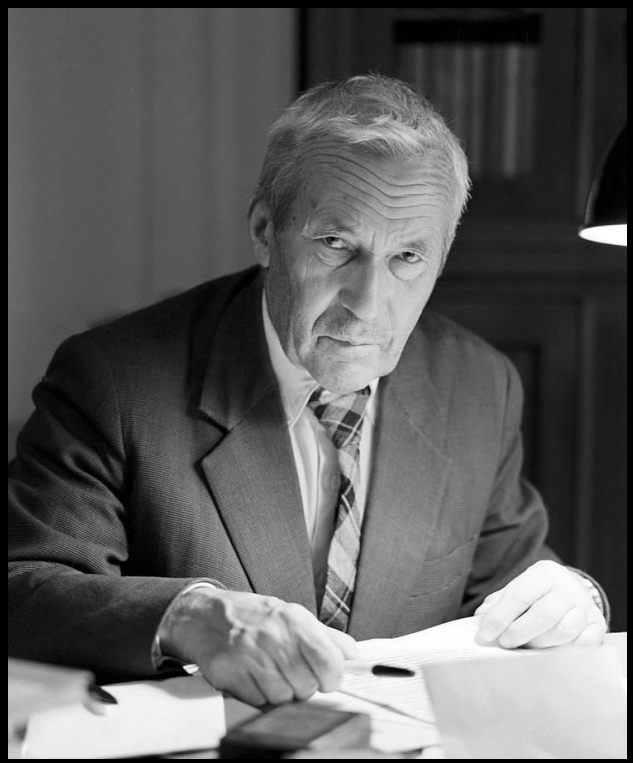

Figure: Andrey Kolmogorov (1903 - 1987)

Stochastic Process and Time Series
(Brockwell and Davis 2009)

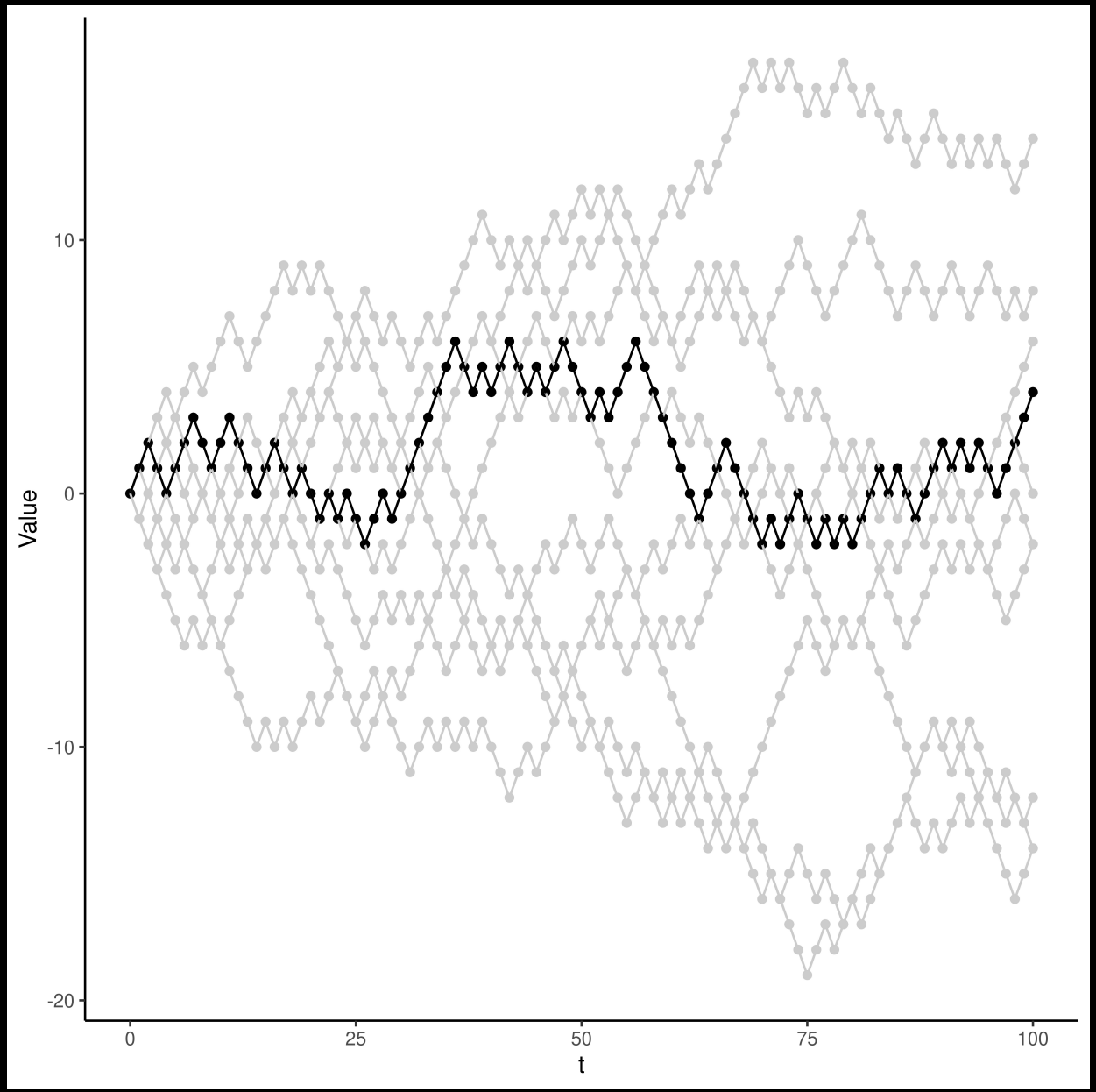

Figure: 10 realizations of the simple random walk. Here $t \in T = \{0, 1, \ldots, 100\}$.

(Weak) Stationarity

References

Brockwell, Peter J. and Richard A. Davis (2009). *Time Series: Theory and Methods*. Springer Science & Business Media.

Kallenberg, Olav (1997). *Foundations of modern probability*. Vol. 2. Springer.