# MCMC Chain Diagnostics

Bayesian Data Analysis

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# Simple Metropolis Algorithm Diagnositics

- We can tell a lot by looking at the *trace lines* of the chains.

  - Use the $x$-axis for the iteration, the $y$ axis for the value of the paramter, and connect the dots.

- We want the trace lines to look stationary—not moving steadily in one direction

- We want the trace lines of the different chains to look more or less identical.

    - Otherwise it suggests the chains are stuck in different regions of the distribution.

# Example of chains stuck in different regions

# Trace lines of 4 chains, showing good behavior