

MCNMC's sample sizes

- Metropolis–Hastings algorithms (broad class of samplers, very general).
 - Most methods in the wild are some flavor of this.
- Reversible Jump MCMC (used in many phylogenetic packages).
 - Allows for posterior distributions with variable dimensionality.
- Usable non-mcmc methods: R-INLA - integrated nested Laplace approximation.
 - Great for structural equation modeling, much faster for some classes of models.

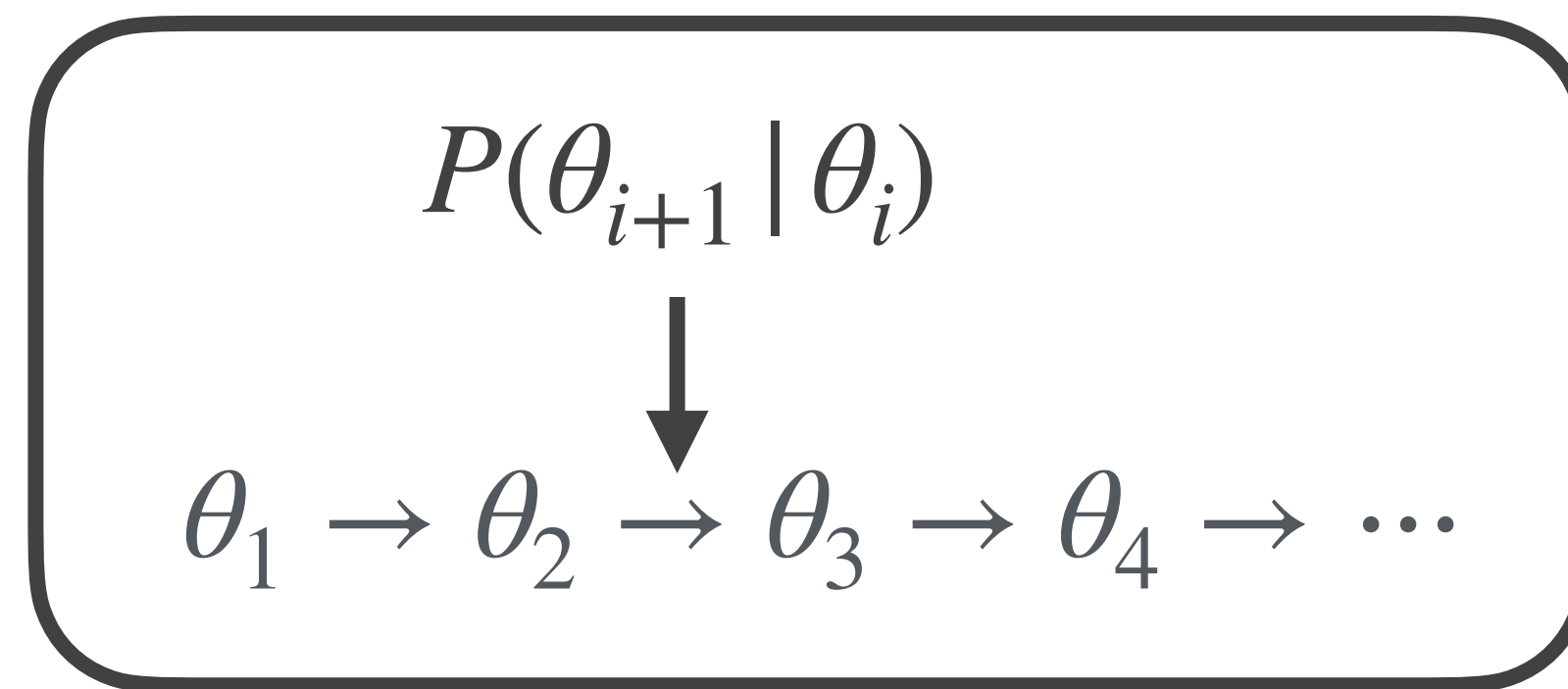
- Gibbs samplers.
 - Mostly surpassed, but still in wide use.
 - Can sample discrete parameters.
 - Requires particular types of priors.
 - Software: WinBugs, Bugs, Jags...
- Hamiltonian Monte Carlo samplers
 - Discrete parameters must be integrated.
 - Can fit dynamic models using differential equations.
 - Software: PyMC3, Edward, Stan (rethinking engine)...

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What makes these samplers different?

Basically the transition proposal distribution



We can visualize what is going on with different samplers:

<https://chi-feng.github.io/mcmc-demo/app.html>