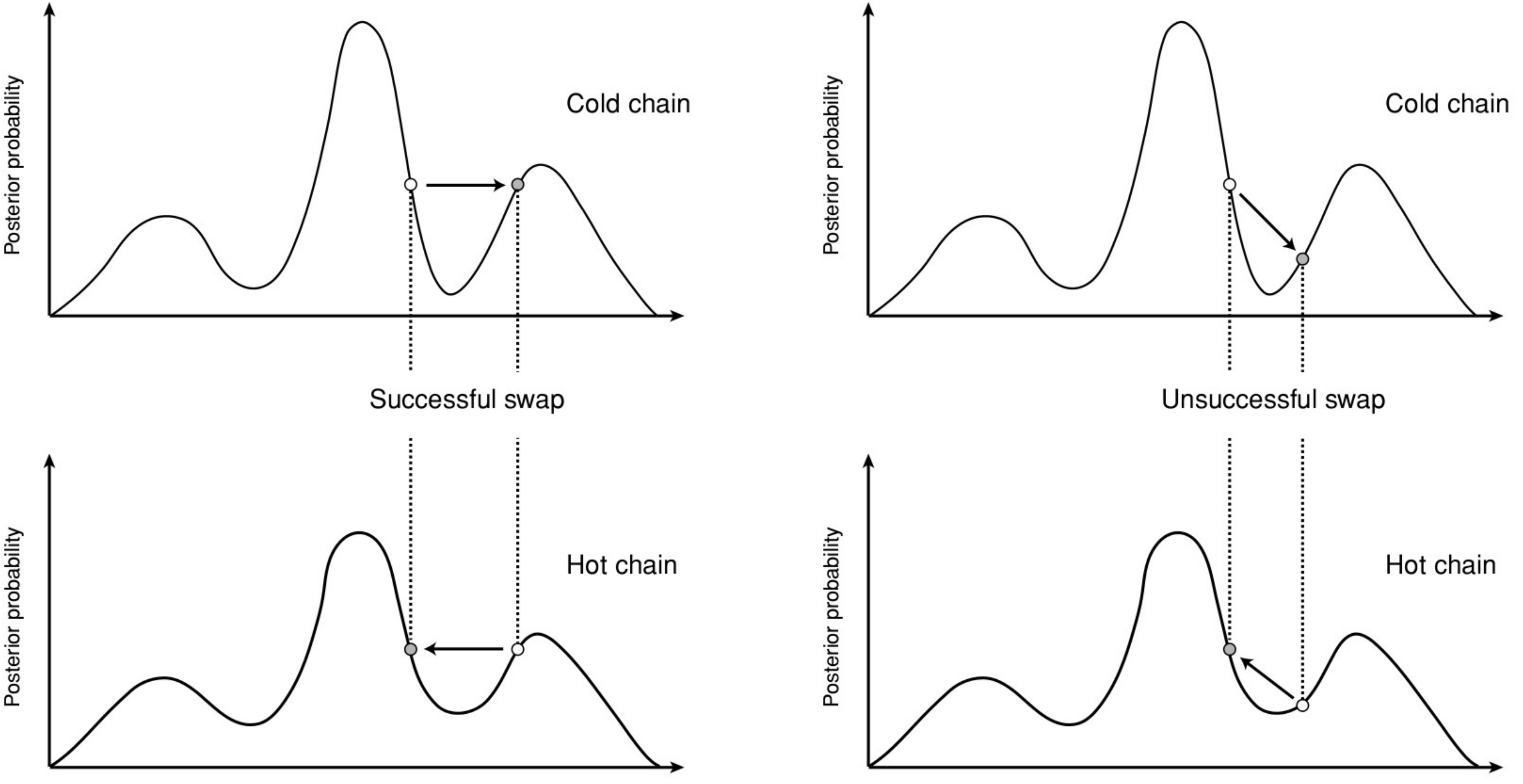
Metropolis coupled MCMC $(MC)^3$



Metropolis coupled MCMC (MC)^3

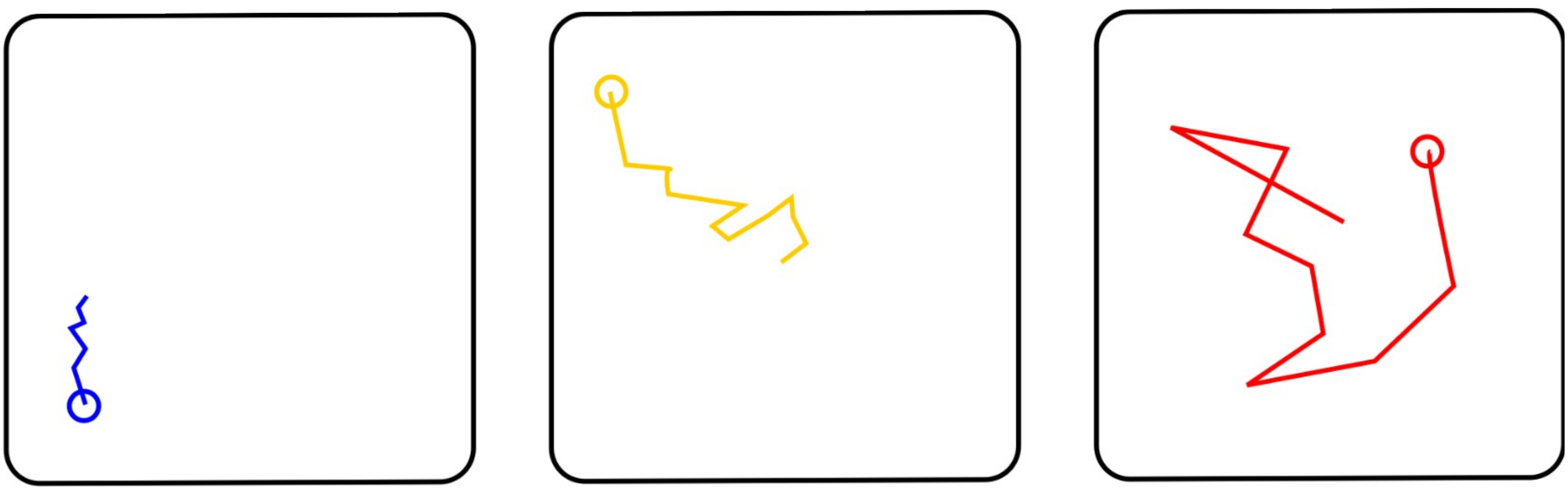
$$T = \frac{1}{1 + \lambda i}$$

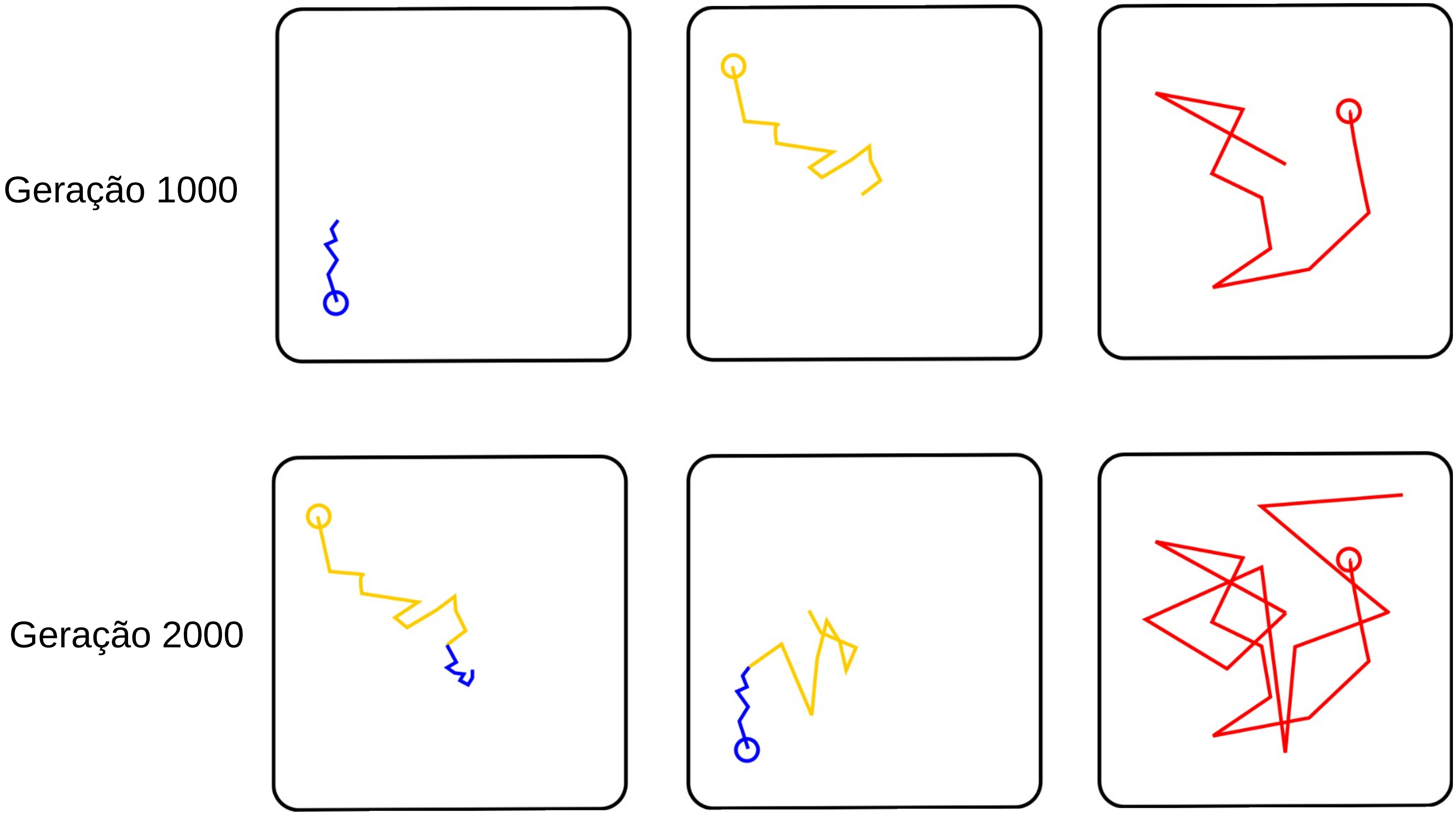
← Temperatura da cadeia

Odds ratio = $$\left(\frac{P(\theta^* | y)}{P(\theta | y)} \right)^T$$

Metropolis coupled MCMC (MC)^3

Odds ratio = $$\left(\frac{P(\theta^*|y)}{P(\theta|y)}\right)^T$$




Geração 1000
Geração 2000

Markov chain Monte Carlo without likelihoods

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Podemos usar MCMC mesmo quando a verossimilhança do modelo não é conhecida.

Esse tipo de análise pode ser interessante para modelos que tentam descrever processos que são específicos para o seu sistema/pergunta.

MCMC Without Likelihoods. In this section we describe an MCMC approach that is the natural analog of algorithm B in that no likelihoods are used or estimated in its implementation. It is based on the following steps:

F1. If now at θ propose a move to θ' according to a transition kernel $q(\theta \to \theta')$.
F2. Generate $\mathcal{D}'$ using model $\mathcal{M}$ with parameters θ'.
F3. If $\mathcal{D}' = \mathcal{D}$, go to *F4*, and otherwise stay at θ and return to *F1*.
F4. Calculate

$$h = h(\theta, \theta') = \min\left(1, \frac{\pi(\theta')q(\theta' \to \theta)}{\pi(\theta)q(\theta \to \theta')}\right).$$

F5. Accept θ' with probability h and otherwise stay at θ, then return to *F1*.