

Untitled

Metropolis-Hastings

- evaluate

$$X = x_i$$

to get an initial value

- generate new value from a proposed distribution

$$q(x_i + 1 \mid x_i)$$

- compute the probability of accepting the new value

$$p_{a(x_i+1 \mid x_i)} = \min\left(1, \frac{p(x_i+1)q(x_i \mid x_i+1)}{p(x_i)q(x_i+1 \mid x_i)}\right)$$

- if $p_a > R$ where $R \sim U(0, 1)$ save proposal else save old value
- iterate until you have n samples

Beta binomial

$$\theta \sim B(\sigma, \beta)$$

$$Y \sim \text{Bin}(n = 1, p = \theta)$$