SLICE SAMPLING

PDF recognizable (samplable) ↓ not ↙

$$p(x) \propto f(x)\, g(x)$$

latent

Introduce ~~latent~~ variable u s.t. $u|x \sim \text{Unif}(0, g(x))$

$$p(u|x) = \frac{1}{g(x)} \mathbb{1}(u < g(x))$$

$$\Rightarrow p(u,x) = p(x)p(u|x)$$
$$= f(x)\, g(x) / g(x)$$
$$= f(x)\, \mathbb{1}(u < g(x))$$

$\longrightarrow$ Full conditionals

② $p(x|u) \propto f(x) \cdot \mathbb{1}(u < g(x))$ ~ Truncated $f(x)$

① $p(u|x) = \frac{1}{g(x)} \mathbb{1}(u < g(x))$ ~ $\text{Unif}(0, g(x))$

Gibbs sample and discard draws of u!

Likelihood

e.g. $\{ f(x) = \text{prior} \; ; \; g(x) = \prod_{i=1}^{N} L_i(\alpha) \}$

investible.

$\mathbb{1}(x$

$g^{-1}(u))$

$\text{unif}(a,b)$ $-\infty < \beta_0 < \min(2)$

$a < \beta_0 < b$

$\text{unif}(a,b)$

$a < \beta < \min(b, \min(x))$