

"SWH"  
"Sampling weighted  
by likelihood"

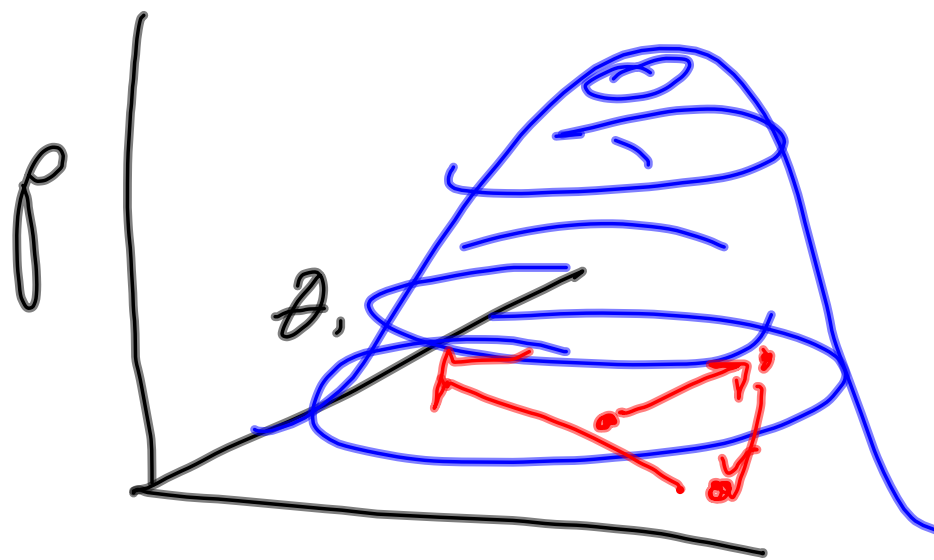
Monte Carlo integration  
for Bayes analysis

# Alternatives in literature

1) SIR algorithm  
similar to SWL

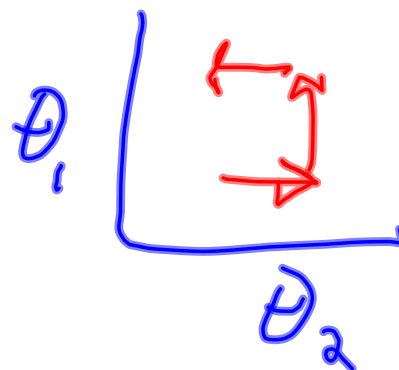
2) MCMC Family  
(BUGS is an  
example  
MTO is an example)

# 2-d Metropolis



Gibbs

$\theta_2$

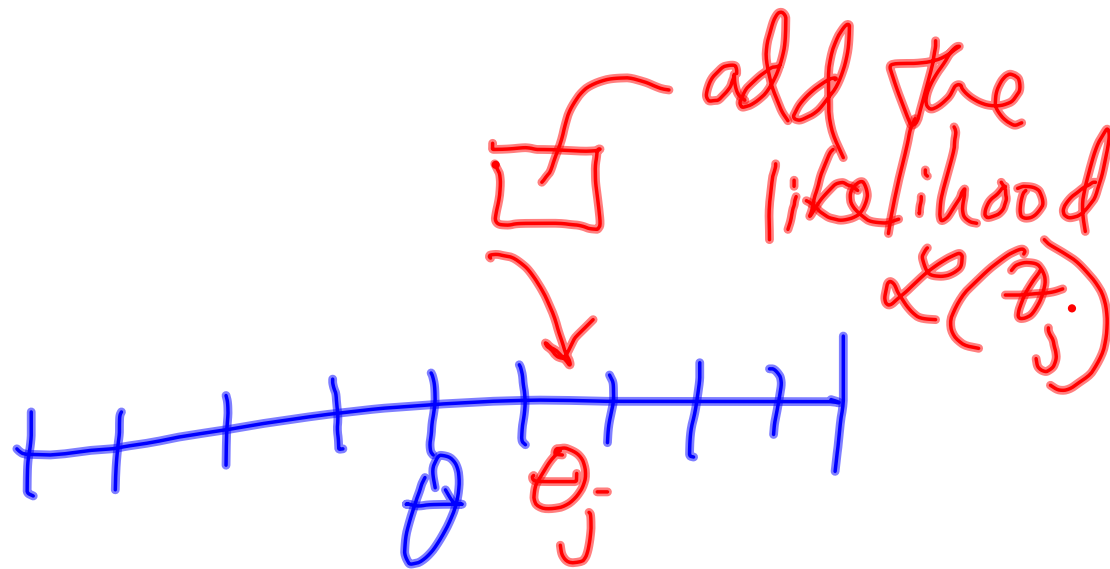


# SWH

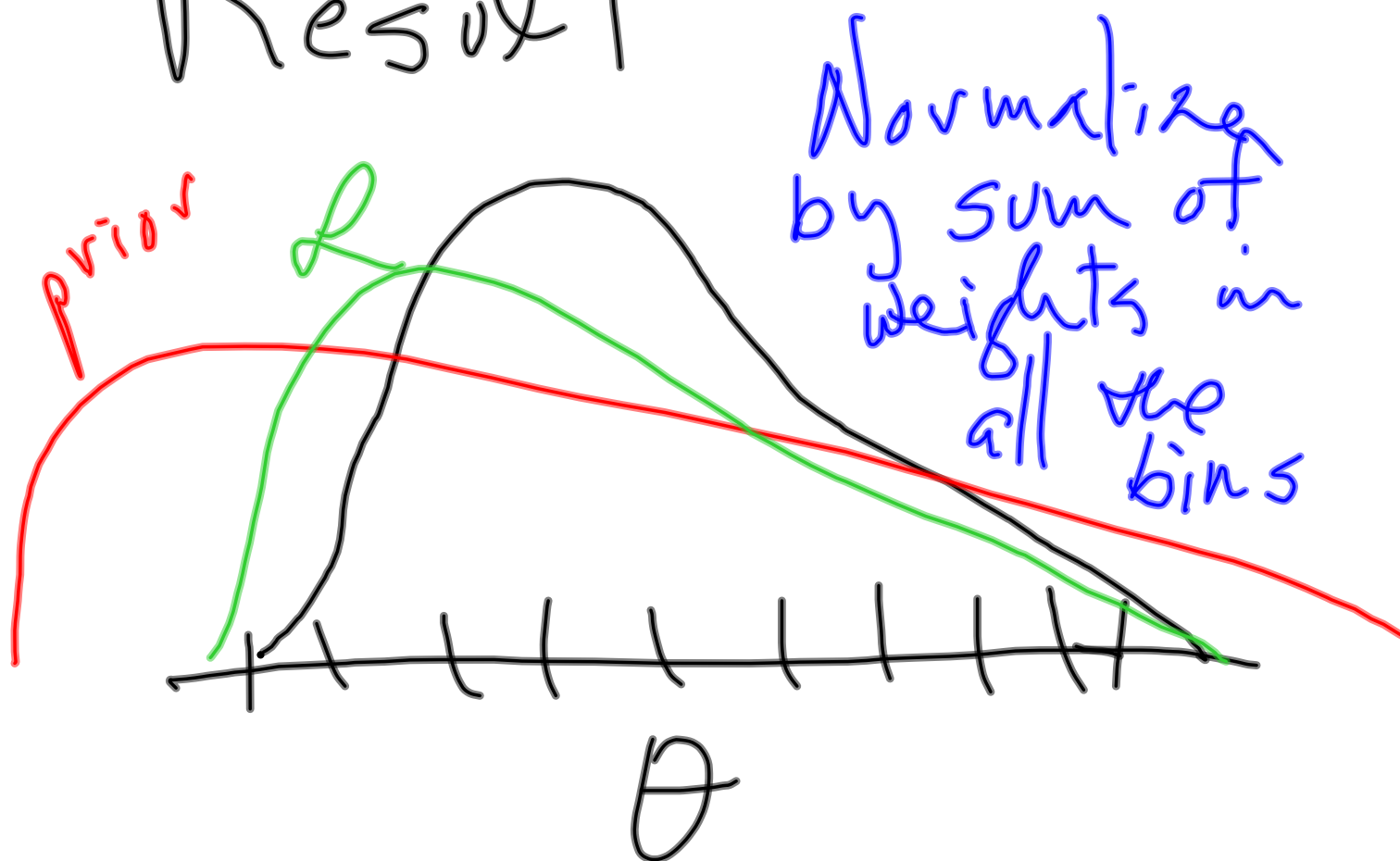
1) sample  $\theta$  from  
prior (SWH PR  
is a random generator  
for values of  $\theta$   
in the prior)  
Iteration  $j \rightarrow \theta_j$

2) calculate  
 $\mathcal{L}(\theta)$

3) add to the histogram



# Result



# Rejection Method for random number generator.

## 3 Building blocks

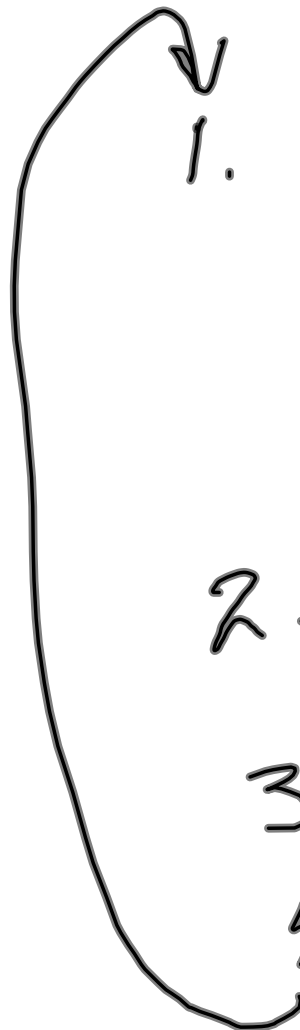
a. Need Formula  
for  $p(\theta) = f(\theta)$

or have it as a  
vector (discretized)

b. Uniform random number  
generator

c. binomial random generator

# Steps for rejection method:

1. Sample  $V$  in the range of  $f$  non zero  $p(\theta)$
  2. Find  $\theta_i$   $f(\theta_i)$  (residual)
  3. Sample  $B(f(\theta_i), 1)$
  4. Accept  $\theta_i$  if  $B \rightarrow$  hit
- 



SWH "process"  
mimic

direct simulation

weight

$$p(\theta/x) = \frac{\mathcal{L}(x/\theta) p(\theta)}{p(x)}$$

post normalization

Rejection Method for  
"non-compat"  $f$   
Strategy

