# Pitfalls in Implementation

## What happens if Gibbs is updated in parallel

Using Gibbs sampling to update each column of , the posterior mean is



Consider two-layer network, with one visible node and 3 hidden nodes. Use the following setting,

net = CIBPnet(alpha=**lambda** l: 1, beta=**lambda** l: 1, nv=1)

net.arch = [1,3]

net.vs = [np.array([100.0]), np.array([100.0,100.0,100.0])]

net.Ws = [object(), np.ones((1.0,3.0))]

net.gammas = [np.array([0.0]), np.array([0.0,0.0,0.0])]

net.Zs = [object(), np.ones((1.0,3.0))]

hiddens = [CIBPhidden(net, np.array([0.5]))]

hidden = hiddens[0]

hidden.layers[1].u = np.ones(3)

hidden.activate\_all()

**for** it **in** range(100):

net.sample\_weights(hiddens)

**print** net.Ws

**Example run.** At first pass,

* W[0,0] = -2
* W[0,1] = -2
* W[0,2] = -2

At second pass

* W[0,0] = 4
* W[0,1] = 4
* W[0,2] = 4

At third pass

* W[0,0] = -6
* W[0,1] = -6
* W[0,2] = -6

**The error is amplified!**