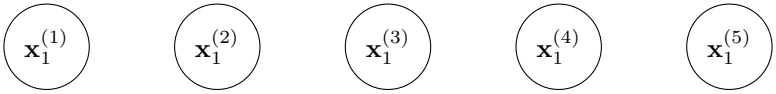
Particle filter

$t = 1$

Normalise weights

$$W_1^{(k)} = \frac{w_1^{(k)}}{\sum_{k'} w_1^{(k')}}$$



0/5 2/5 2/5 0/5 1/5

Can resample from

$$\hat{p}(\mathrm{d}\mathbf{x}_1 \mid \mathbf{y}_1, \theta) = \sum_k W_1^{(k)} \delta_{\mathbf{x}_1^{(k)}}(\mathbf{x}_1)$$

to estimate

$$p(\mathbf{x}_1 \mid \mathbf{y}_1, \theta)$$