$$\mathbf{h}_{t+1} - \mathbf{h}_t = f(\mathbf{h}_t, \theta_t)$$

Input State

Output State

$\mathbf{h}_0$ $\mathbf{h}_1$ $\mathbf{h}_2$ ..... $\mathbf{h}_{T-2}$ $\mathbf{h}_{T-1}$ $\mathbf{h}_T$

$f(\mathbf{h}_0, \theta_0)$ $f(\mathbf{h}_1, \theta_1)$ $f(\mathbf{h}_2, \theta_2)$ $f(\mathbf{h}_{T-2}, \theta_{T-2})$ $f(\mathbf{h}_{T-1}, \theta_{T-1})$

Input Layer

Output Layer

$\theta_{1,\,i}$ $\theta_{2,\,i}$ $\theta_{T,\,i}$

$\theta_{1,\,j}$ $\theta_{2,\,j}$

$\theta_{1,\,k}$

(additional hidden layers ommitted)

0 1 2 ..... T - 2 T - 1 T

Depth (t)