$$\overline{y}_k^1 = \sigma\left(\sum_{d=0}^N \theta_{k,1}^d L_k^d x_k\right) \longrightarrow \overline{y}_{k,m} = \sigma\left(\sum_{d=0}^N \theta_{k,1}^d L_k^d \overline{y}_k^{m-1}\right) \longrightarrow \overline{S}$$