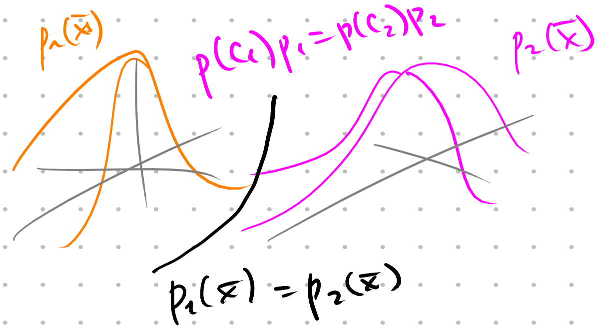
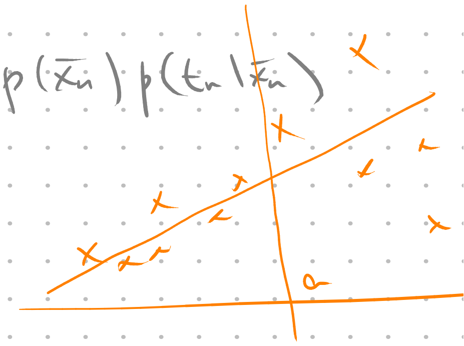


$$p(C_1|\bar{x}) = \frac{p(C_1)\,p_1(\bar{x})}{p(C_1)\,p_1(\bar{x}) + p(C_2)\,p_2(\bar{x})}$$

$$D = \{(\bar{x}_n, \underbrace{t_n}_{\in\{0,1\}})\}_{n=1}^{N}$$

$$p(\underline{\bar{x}_n, t_n}) = p(t_n)\,p(\bar{x}_n|t_n) = p(\bar{x}_n)\,p(t_n|\bar{x}_n)$$

$$p(t_n|\bar{x}_n)$$



$$p(\underline{\bar{w}}|D) \propto \underline{p(\bar{w})}\,p(D|\bar{w}) = \mathcal{N}(\bar{w}|\bar{0}, \underline{\alpha I}) \prod_n \mathcal{N}(y_n|\bar{w}^T\bar{x}_n, \underline{\beta})$$

$$\parallel$$

$$\mathcal{N}\left(\bar{w}\,\middle|\,\bar{0}, \begin{pmatrix} \boxed{\alpha_1} & & 0 \\ & \boxed{\alpha_2} & \\ 0 & & \boxed{\alpha_d} \end{pmatrix}\right)$$

$$\underline{\underline{M}}: \bar{\theta}, \bar{\alpha}$$

$$p(\bar{x}|\bar{\theta}, \bar{\alpha})$$

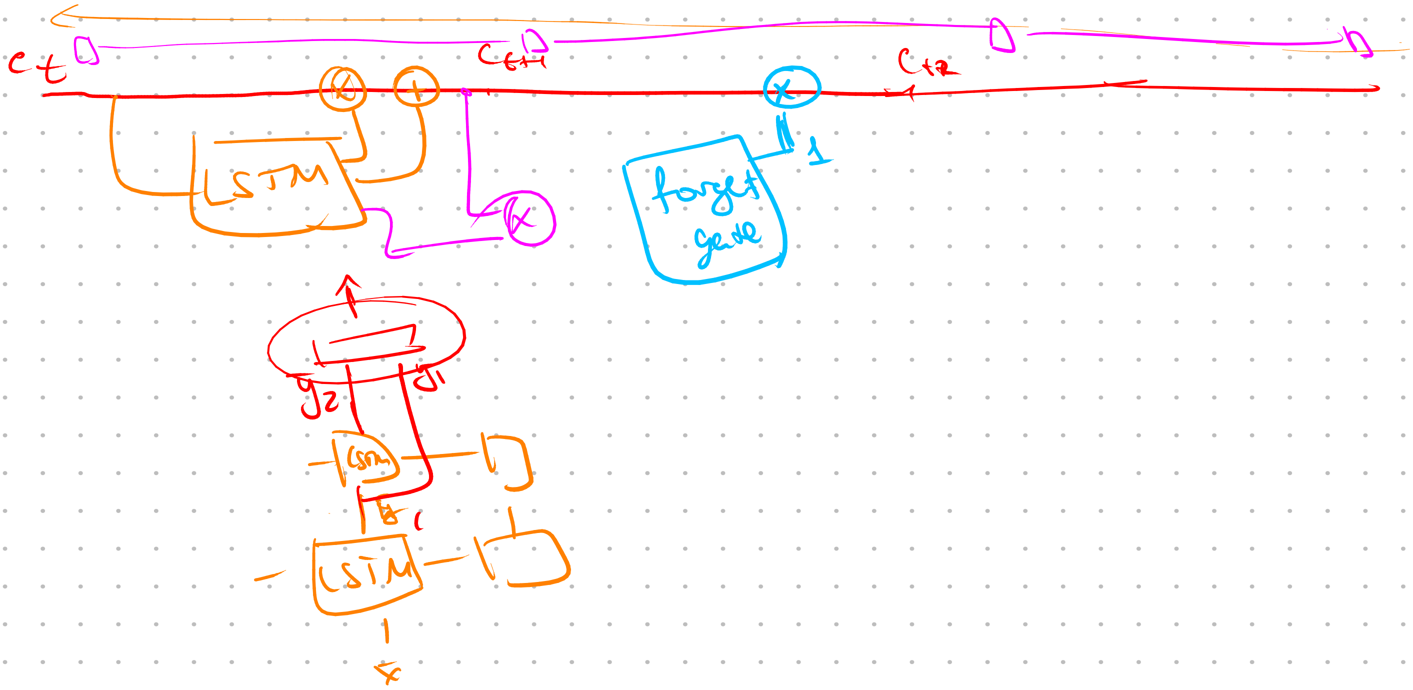
$$p(\bar{\theta}|D; \bar{\alpha}) = \frac{p(\bar{\theta}|\bar{\alpha})\,p(D|\bar{\theta}, \bar{\alpha})}{p(D|\bar{\alpha})} \quad p(D|\bar{\alpha}) \xrightarrow[\bar{\alpha}]{} \max$$

$$\bar{x} = f(\bar{x})$$

$$\log p(D|\alpha, \beta) \xrightarrow[\alpha, \beta]{} \max$$

$$\frac{\partial \log p}{\partial \alpha} = \ldots = 0, \qquad \begin{cases} \alpha = f(\alpha, \beta) \\ \beta = g(\alpha, \beta) \end{cases}$$

$$\frac{\partial \log p}{\partial \beta} = \ldots = 0$$



c_t
c_{t+1}
c_{t+2}
LSTM
forget gate
1
g_2
g_1
LSTM
LSTM
x