

4 opna 3 punktu

$D = hthhthh$

$$p(D|\theta) = c \cdot \theta^4 (1-\theta)^3 \xrightarrow{\theta} \max$$

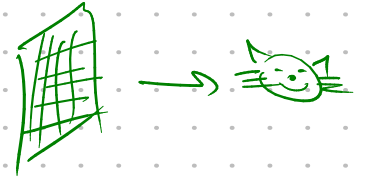
$$\left(\frac{1}{c}\right) p(D|\theta) = p(\theta)$$

$$\frac{\partial p}{\partial \theta} = \theta^3 (1-\theta)^2 \cdot (4(1-\theta) - 3\theta) = 0$$

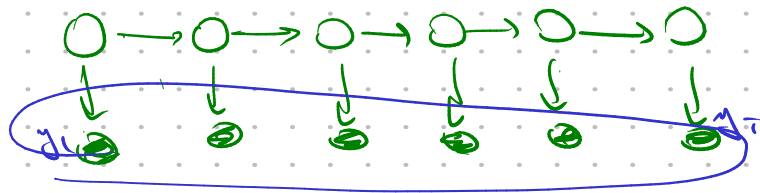
$$p(D|\theta) = \prod_{d \in D} p(d|\theta)$$

$$\log p(D|\theta) = \sum_{d \in D} \log p(d|\theta)$$

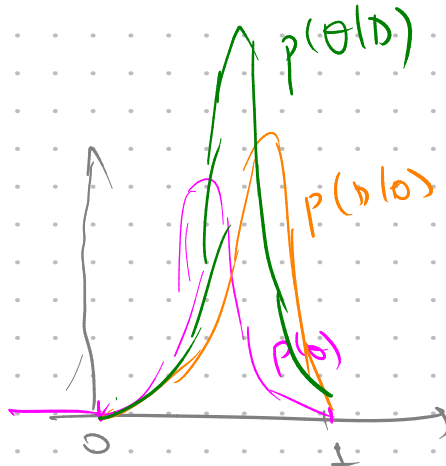
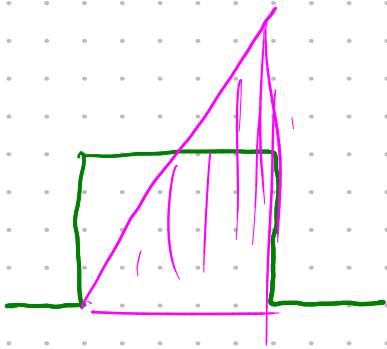
$$p(d|\theta, D') = p(d|\theta)$$



HMM



$$D = \{d = y_1 \dots y_T\}$$



$$\begin{aligned} p(\text{heads}|D) &= \int p(\text{heads}|\theta) p(\theta|D) d\theta = \\ &= E_{p(\theta|D)} [p(\text{heads}|\theta)] = E_{p(\theta|D)} [\theta] \end{aligned}$$