

6(b) if I am given a prior distribution on model parameters $p(\theta)$

$$\underbrace{p(\theta|x)}_{\substack{\uparrow \\ \text{posterior}}} = \frac{p(x|\theta) p(\theta)}{p(x)}$$

To maximize posterior, I ignore $p(x)$

because θ doesn't depend on $p(x)$

$$\hat{\theta} = \underset{\theta}{\operatorname{argmax}} \{ p(\theta|x) p(\theta) \}$$

$$= \underset{\theta}{\operatorname{argmax}} \left\{ \log p(\theta|x) p(\theta) \right\}$$

$$P(\theta|x) = \frac{P(x|\theta) P(\theta)}{P(x)}$$

$$P(\theta|x) \propto P(x|\theta) P(\theta)$$

~~~~~  
↑

事後分布

白色確率変数と見えた