$$P(A \mid B) = \frac{\boxed{P(A \wedge B)}}{P(B)} = \frac{P(B \mid A) \times P(A)}{P(B)}$$

$$P(B \mid A) = \frac{P(A \wedge B)}{P(A)}$$

$$P\left(\begin{array}{c}\text{خریدن} \mid \text{بستنی کمتن}\end{array}\right) = \frac{P\left(\begin{array}{c}\text{بستنی} \mid \text{خریدن}\end{array}\right) \times P\left(\begin{array}{c}\text{خریدن}\end{array}\right)}{P\left(\begin{array}{c}\text{خریدن بستنی}\end{array}\right)}$$

$$P(y \mid x)$$

$$P(y=1 \mid x)$$

$$\frac{P(x \mid y=1) \times P(y=1)}{P(x)}$$

$$\sim f_1(x)$$

$$P(y=-1 \mid x)$$

$$\frac{P(x \mid y=-1) \times P(y=-1)}{P(x)}$$

$$f_2(x)$$

$$> \\ < \\ = \, ?$$
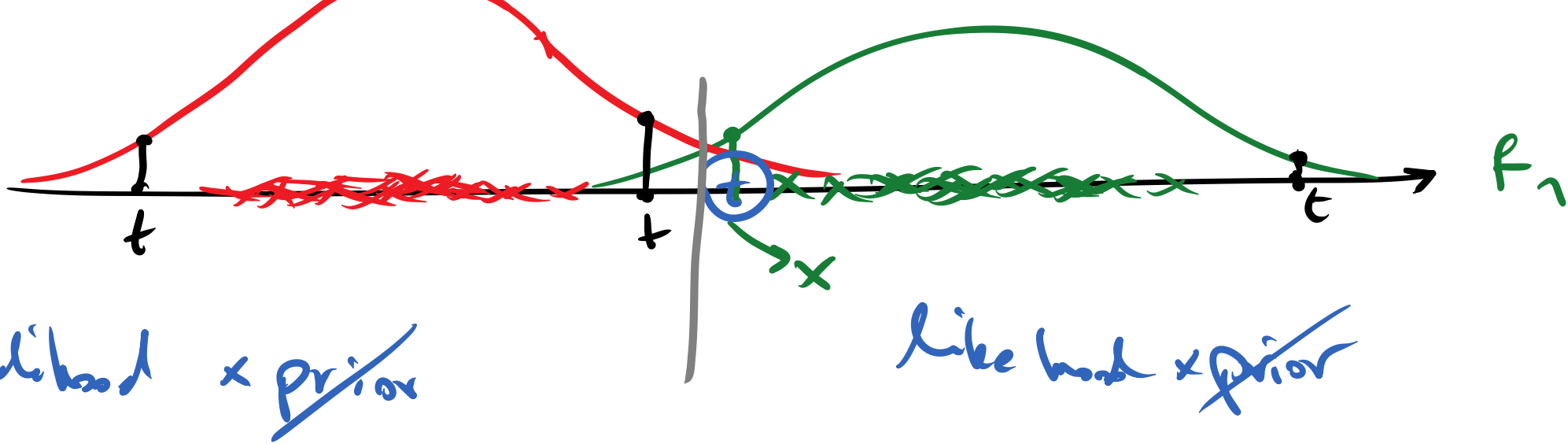
$$\underbrace{P(y|x)}_{\text{posterior}} = \frac{\overbrace{P(x|y)}^{\text{likelihood}} \times \overbrace{P(y)}^{\text{Prior}}}{\underbrace{P(x)}_{\text{Evidence}}}$$

likelihood $\longrightarrow$ توزیع

پارامتر

likelihood × prior

likelihood × prior

$$N(\underset{\sim}{\mu}, \underset{\sim}{\delta}) = \frac{1}{\sqrt{2\pi}\,\delta} \exp\left(\frac{(x-\mu)^2}{\delta}\right)^2$$

$$\mu = \frac{\sum x_i}{n}$$

$$\delta = \frac{\sum (x_i - \mu)^2}{n}$$