

$$\begin{aligned}
& P(y = 1|x) \\
&= \frac{P(x|y = 1)P(y = 1)}{P(x)} \\
&= \frac{P(x|y = 1)P(y = 1)}{P(x|y = 0)P(y = 0) + P(x|y = 1)P(y = 1)} \\
&= \frac{\gamma \prod_{j=1}^d \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{(x_j - \mu_j^1)^2}{2\sigma_j^2}}}{(1 - \gamma) \prod_{j=1}^d \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{(x_j - \mu_j^0)^2}{2\sigma_j^2}} + \gamma \prod_{j=1}^d \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{(x_j - \mu_j^1)^2}{2\sigma_j^2}}}
\end{aligned}$$

$$\begin{aligned}
& P(y = 0|x) \\
&= \frac{P(x|y = 0)P(y = 0)}{P(x)} \\
&= \frac{P(x|y = 0)P(y = 0)}{P(x|y = 0)P(y = 0) + P(x|y = 1)P(y = 1)} \\
&= \frac{\gamma \prod_{j=1}^d \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{(x_j - \mu_j^0)^2}{2\sigma_j^2}}}{(1 - \gamma) \prod_{j=1}^d \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{(x_j - \mu_j^0)^2}{2\sigma_j^2}} + \gamma \prod_{j=1}^d \frac{1}{\sqrt{2\pi\sigma_j}} e^{-\frac{(x_j - \mu_j^1)^2}{2\sigma_j^2}}}
\end{aligned}$$