Considerăm selecție de volum 1, $n=1$

$L(\theta) = \prod_{i=1}^{n} f(x_i; 1, \theta) = f(y; 1, \theta)$.

$L(\theta_0) = L(2) = \frac{1}{2} \cdot e^{-\frac{y}{2}}$

$L(\theta_1) = L(1) = e^{-y}$

$\frac{L(\theta_1)}{L(\theta_0)} = \frac{e^{-y}}{\frac{1}{2} \cdot e^{-\frac{y}{2}}} = \frac{2}{e^{\frac{y}{2}}} \geq k_\alpha \Rightarrow e^{\frac{y}{2}} \leq \frac{2}{k_\alpha} \Rightarrow$

$\frac{y}{2} \leq \ln 2 - \ln k_\alpha \Rightarrow y \leq \underbrace{2\ln 2 - 2\ln k_\alpha}_{= k'}$

$RC: \{y \leq k'\}$

$\alpha = P(\text{eroare de tip 1}) = P(\text{respingi } H_0 \mid H_0) =$

$= P(y \leq k' \mid \theta = 2) =$

$= \int_0^{k'} \frac{1}{2} e^{-\frac{x}{2}} dx = -e^{-\frac{x}{2}} \Big|_0^{k'} = -e^{-\frac{k'}{2}} + 1 \Rightarrow$

$e^{-\frac{k'}{2}} = 1 - \alpha \Rightarrow -\frac{k'}{2} = \ln(1-\alpha) \Rightarrow k' = -2\ln(1-\alpha)$

$RC: \{y \leq -2\ln(1-\alpha)\}$, $\alpha \in (0,1)$.