$\mu_1 < \mu_2$

$H_0: \mu = \mu_1, \quad H_1: \mu = \mu_2$

$t = \exp\left(\frac{1}{2\sigma}\left(\sum_{i=1}^{n} 2x_i \underbrace{(\mu_2 - \mu_1)}_{>0} + n(\mu_1^2 - \mu_2^2)\right)\right)$

$f(\sum x_i)$

$t < C$

$\sum x_i < C_1$

$P(\sum x_i \geq C_1 \mid H_0) = \alpha$

$P(\sum x_i < C_1 \mid H_1) = \beta$

$\sqrt{n} = \frac{(\Phi^{-1}(\beta) - \Phi^{-1}(1-\alpha))\sigma}{(\mu_1 - \mu_2)}$

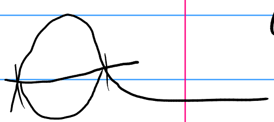
$\hat{\lambda} = \frac{1}{\bar{X}}$

$f(x, \lambda) = \lambda e^{-\lambda x}$ $\quad f(x_1, \dots x_n, \lambda) = \lambda^n e^{-\lambda n \bar{x}}$

$H_0: \lambda = \lambda_1, \quad H_1: \lambda = \lambda_2$

$t = \frac{\lambda_1^n e^{-\lambda_1 n \bar{x}}}{\left(\frac{1}{\bar{x}}\right)^n e^{-n}} = \underbrace{e^n (\bar{x}\lambda_1)^n e^{-\lambda_1 n \bar{x}}}_{} < C$

$(\bar{x}\lambda_1)^n e^{-\lambda_1 n \bar{x}} < C$ $\quad \bar{x} \sim N(\mu, \sigma^2)$



$\bar{X} > C$ $\quad t^n e^{-tn} = (te^{-t})^n < C$ $\quad -2\ln\frac{L(\dots)}{L(\dots)} \sim \chi^2_{(n)}$

$C_1 < \bar{X} < C_2$ $\quad (\bar{x}\lambda_1)^n$ $\quad x e^{-x} = -W(-x)$