

1) $H_0: \mu_1 = \dots = \mu_j = \mu$

$$H_0 (m_1 = \dots = m_j = \mu) \quad H_1 (m_i \neq m_j, i \neq j)$$

$$x_{11} \dots x_{1n_1} \rightarrow \bar{x}_{1.}$$

$$x_{21} \dots x_{2n_2} \rightarrow \bar{x}_{2.}$$

$$x_{j1} \dots x_{jn_j} \rightarrow \bar{x}_{j.}$$

$\bar{x}_{..}$ - узорачка средина

средње вредности узорачка

$$L(m_1, \dots, m_j, \sigma^2) = \left(\frac{1}{\sqrt{2\pi}\sigma^2} \right)^n e^{-\frac{1}{2\sigma^2} \sum_{k,i} (x_{ki} - m_k)^2}$$

$$\ln L(m_1, \dots, m_j, \sigma^2) = -\frac{n}{2} \ln 2\pi - \frac{n}{2} \ln \sigma^2 - \frac{1}{2\sigma^2} \sum_{k,i} (x_{ki} - m_k)^2$$

$$\ln'_{m_k} L(m_1, \dots, m_j, \sigma^2) = + \frac{1}{\sigma^2} \sum_i (x_{ki} - m_k) = 0 \Rightarrow \hat{m}_k = \bar{x}_{k.}$$

$$\ln'_{\sigma^2} L(m_1, \dots, m_j, \sigma^2) = -\frac{n}{2\sigma^2} + \frac{1}{2\sigma^4} \sum_{k,i} (x_{ki} - \bar{x}_{k.})^2 = 0 \Rightarrow \hat{\sigma}^2 = \frac{1}{n} \sum_{k,i} (x_{ki} - \bar{x}_{k.})^2$$

$$\text{Упу } H_0: L(m, \sigma^2) = \left(\frac{1}{\sqrt{2\pi}\sigma^2} \right)^n e^{-\frac{1}{2\sigma^2} \sum_{k,i} (x_{ki} - m)^2}$$

$$\ln L(m, \sigma^2) = -\frac{n}{2} \ln 2\pi - \frac{n}{2} \ln \sigma^2 - \frac{1}{2\sigma^2} \sum_{k,i} (x_{ki} - m)^2$$

$$\ln'_m L(m, \sigma^2) = \frac{1}{\sigma^2} \sum_{k,i} (x_{ki} - m) = 0 \Rightarrow \hat{m} = \frac{1}{n} \sum \sum x_{ki} = \bar{x}_{..}$$

$$\ln'_{\sigma^2} L(m, \sigma^2) = -\frac{n}{2\sigma^2} + \frac{1}{2\sigma^4} \sum_{k,i} (x_{ki} - \bar{x}_{..})^2 = 0$$

$$\hat{\sigma}^2 = \frac{1}{n} \sum_{k,i} (x_{ki} - \bar{x}_{..})^2$$

$$\Lambda = \left(\frac{\hat{\sigma}^2}{\sigma_0^2} \right)^{\frac{n}{2}} \quad - \text{уочао као да } j=2$$

$$W = \{ \Lambda \leq c \} = \left\{ \frac{\sum \sum (x_{ki} - \bar{x}_{k.})^2}{\sum \sum (x_{ki} - \bar{x}_{..})^2} \leq c, \right\} = \left\{ \frac{\sum \sum (x_{ki} - \bar{x}_{k.})^2}{\sum \sum (x_{ki} - \bar{x}_{..})^2} \geq k \right\}$$

$$k = F_{j-1, n-j}^{-1}(1-\alpha)$$