

(T<sub>10</sub>)

a)  $H_0: \xi \sim R[0, 9] \quad n = 100$

$H_1: \overline{H_0}$

0 1 2 3 4 5 6 7 8 9

$m_i$ : 5 8 6 12 14 18 11 6 13 7

$p_i$ :  $1/10$   $1/10$   $1/10$   $1/10$   $1/10$   $1/10$   $1/10$   $1/10$   $1/10$   $1/10$

$np_i$ : 10 10 10 10 10 10 10 10 10 10

$$\chi^2) \quad \tilde{\Delta} = \frac{(10-5)^2}{10} + \dots + \frac{(10-7)^2}{10} = 16,4$$

$$\Delta \sim \chi^2(9)$$

$$p\text{-val} = P(\Delta \geq \tilde{\Delta} | H_0) = \int_{16,4}^{\infty} g(t) dt = 0,0590 >$$

$$> \alpha = 0,05 \Rightarrow \text{нет осн. отб. } H_0$$

Колмогоров)

$$\tilde{F}(x) = \frac{m}{n}$$

$$\tilde{\Delta} = 10 \sup (|F^* - F|) = 1,43$$

$$\Delta \sim K(x)$$

$$p\text{-val} = P(\Delta \geq \tilde{\Delta} | H_0) = 1 - K(\tilde{\Delta}) = -2 \sum_{k=1}^{\infty} (-1)^k e^{-2k^2 \tilde{\Delta}^2} =$$

$$= 0,033 < \alpha \Rightarrow \text{отвержение } H_0$$



$$\textcircled{c}) H_0: \underline{\xi} \sim \mathcal{N}(\theta_1, \theta_2^2)$$

$$H_1: H_0$$

$\chi^2$ )

$(-\infty, 1) \quad [1, 2) \quad [2, 3) \quad [3, 4) \quad [4, 5) \quad [5, 6) \quad [6, 7) \quad [7, 8) \quad [8, 9) \quad [9, +\infty)$

$n_i$  5 8 6 12 14 18 11 6 13 7

$p_i$  5,5 5,5 8,7 11,9 14,2 14,8 13,4 10,6 7,3 8,3

$$p_i = \int_{a_i}^{b_i} \frac{1}{\sqrt{2\pi} \theta_2} e^{-\frac{1}{2}(\theta_1 - x)^2 / \theta_2^2} dx$$

$$L = \prod_{i=1}^n p_i \rightarrow \max$$

$$\hat{\theta}_1 = 5,29$$

$$\hat{\theta}_2 = 2,68$$

$$\Delta \rightsquigarrow \chi^2(10 - 1 - 2) = \chi^2(7)$$

$$\hat{\Delta} = 9,8$$



$$p\text{-val} = \int_{-\infty}^{+\infty} q(t) dt = 0,200 > \alpha \Rightarrow \text{вер}$$

ост. 9,8  
отб. 0,8  
вер.  $H_0$

Компьютер):

$$p\text{-val} = 0,015 < \alpha \Rightarrow \text{отб. } H_0$$