

T₆

$$n = 200$$

A₀ - ну пауз

A₁ - один раз

A₂ - два раза

$$X \sim B(2, \theta)$$

$$p(x) = \sum_{k=0}^2 C_2^k p^k (1-p)^{2-k} \{k\}$$

$$p_0 = P(A_0) = C_2^0 \theta^0 (1-\theta)^2 = (1-\theta)^2$$

$$p_1 = P(A_1) = C_2^1 \theta (1-\theta) = 2\theta(1-\theta)$$

$$p_2 = P(A_2) = C_2^2 \theta^2 = \theta^2$$

A₀

A₁

A₂

m_i

10

181

9

np_i

$\frac{201^2}{400^2} \cdot 200$

$400 \frac{2\theta(1-\theta)}{400^2}$

$200 \frac{199^2}{400^2}$

ошпг

$$L(\theta) = (1-\theta)^{20} (2\theta(1-\theta))^{181} \theta^{2 \cdot 9}$$

$$\ln L(\theta) = 20 \ln(1-\theta) + 181 \ln 2 + 181 \ln \theta + 181 \ln(1-\theta) + 18 \ln \theta$$

открываем мин-бо

$$(\ln L(\theta))' = \frac{199}{\theta} - \frac{201}{1-\theta} = 0$$

$$199 - \theta \cdot 199 - 201\theta = 0$$

$$\tilde{\theta} = \frac{199}{400}$$

$$\tilde{\Delta} = \sum_{i=1}^k \frac{(m_i - np_i)^2}{np_i} = \frac{201^2}{400} + \frac{200^2}{199} + \frac{9^2}{400}$$

$$= \frac{\left(10 - \frac{201^2}{400}\right)^2}{200 \cdot \frac{201^2}{400}} + \frac{\left(181 - \frac{199 \cdot 201}{400}\right)^2}{\frac{199 \cdot 201}{400}} + \frac{\left(9 - \frac{200 \cdot 199^2}{400^2}\right)^2}{\frac{200 \cdot 199^2}{400^2}} =$$

$$= 131,23 ; \quad \Delta \sim \chi^2(3-1-1) = \chi^2(1)$$

$$p\text{-value} = P(\Delta \geq \tilde{\Delta} | H_0)$$

$$= P(\Delta \geq \tilde{\Delta} | H_0) = \int_{131,23}^{+\infty} \chi^2(1) dt =$$

$$= 0 \quad \text{отвергнем}$$

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