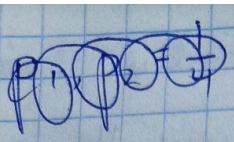

$T_{11}$

$\xi \sim \frac{1}{4}\{1\} + \frac{1}{4}\{2\} + [illegible] + (1/2 - \vartheta)\{3\} + \vartheta\{4\}$

$H_0: \Theta = \frac{1}{3}$

$H_1: \Theta = \frac{1}{4}$

$n = 2$

$G_{кр}: \ell \geq C$

$$\ell = \frac{L_1}{L_0} = \frac{p_1(x_1) \cdot p_1(x_2)}{p_0(x_1) \cdot p_0(x_2)}$$

$\alpha = 0{,}2$

$\ell$:

| $x_2$ \ $x_1$ | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | 1 | 1 | $\frac{24}{16}$ | $\frac{12}{16}$ |
| 2 | 1 | 1 | $\frac{24}{16}$ | $\frac{12}{16}$ |
| 3 | $\frac{24}{16}$ | $\frac{24}{16}$ | $\frac{36}{16}$ | $\frac{18}{16}$ |
| 4 | $\frac{12}{16}$ | $\frac{12}{16}$ | $\frac{18}{16}$ | $\frac{9}{16}$ |

$\ell(1,1) = 1$

$\ell(1,2) = 1$

$\ell(1,3) = \frac{\frac{1}{16}}{\frac{1}{24}} = \frac{24}{16}$

$\ell(1,4) = \frac{1/16}{1/12} = \frac{12}{16}$

$\ell(2,2) = 1$

$\ell(2,3) = \frac{24}{16}$

$\ell(2,4) = \frac{12}{16}$

$\ell(3,3) = \frac{36}{16}$

$\ell(3,4) = \frac{18}{16}$

$C = \frac{24}{16}$ $\quad \ell \geq C$

$G_{up}$: (3,3) (1,3) (2,3) (3,1) (3,2)

$\alpha_1 = P(\vec{x}_n \in G_{кр} \mid H_0) \leq \alpha = 0{,}2$

$H_0$

| $x_1$ / $x_2$ | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{24}$ | $\frac{1}{12}$ |
| 2 | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{24}$ | $\frac{1}{12}$ |
| 3 | $\frac{1}{24}$ | $\frac{1}{24}$ | $\frac{1}{36}$ | $\frac{1}{18}$ |
| 4 | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{18}$ | $\frac{1}{9}$ |

$\alpha_1 = 4 \cdot \frac{1}{24} + \frac{1}{36} = 0{,}194 \leq 0{,}2$

$H_1$:

| $x_1$ / $x_2$ | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ |
| 2 | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ |
| 3 | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ |
| 4 | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ |

$W = P(\vec{x}_n \in G_{кр} \mid H_1) = \frac{5}{16} = 0{,}3125$

$\alpha_2 = \frac{11}{16} = 1 - W$