

$$\Omega = \{0, 1\}^3, \quad \mathcal{F} = 2^\Omega, \quad P[\omega_1, \omega_2, \omega_3] =$$

$$= p_1^{\omega_1} (1-p_1)^{1-\omega_1} \cdot p_2^{\omega_2} (1-p_2)^{1-\omega_2} \cdot p_3^{\omega_3} (1-p_3)^{1-\omega_3}$$

Niech S - zdarzenie, że 3 trafia.

$$a) A = \{(0, 0, 1), (0, 1, 0), (1, 0, 0)\}$$

$$S \cap A = \{(0, 0, 1)\}$$

$$P[S|A] = \frac{P[S \cap A]}{P[A]} =$$

$$= \frac{(1-p_1)(1-p_2)p_3}{p_1(1-p_2)(1-p_3) + (1-p_1)p_2(1-p_3) + (1-p_1)(1-p_2)p_3} =$$

$$= \frac{(1-p_1)(1-p_2)p_3}{p_1 + p_2 + p_3 - 2p_1p_2 - 2p_1p_3 - 2p_2p_3 + 3p_1p_2p_3}$$

$$b) B = \{(1, 1, 0), (0, 1, 1), (1, 0, 1)\}$$

$$S \cap B = \{(0, 1, 1), (1, 0, 1)\}$$

$$P[S|B] = \frac{P[S \cap B]}{P[B]} =$$

$$\begin{aligned}
& \frac{p_1(1-p_2)p_3 + (1-p_1)p_2p_3}{p_1p_2(1-p_3) + p_1(1-p_2)p_3 + (1-p_1)p_2p_3} = \\
& = \frac{p_1p_3 + p_2p_3 - 2p_1p_2p_3}{p_1p_2 + p_1p_3 + p_2p_3 - 3p_1p_2p_3} = \\
& = 1 - \frac{(1-p_3)p_1p_2}{p_1p_2 + p_1p_3 + p_2p_3 - 3p_1p_2p_3}
\end{aligned}$$

$$c) C = \{(1, 1, 1)\}$$

$$P[S|C] = \underline{1}.$$