

$$P(U_1) = \frac{3}{9}$$

$$P(U_2) = \frac{2}{9}$$

$$P(U_3) = \frac{4}{9}$$

a) $\Delta = "2R, 1V"$

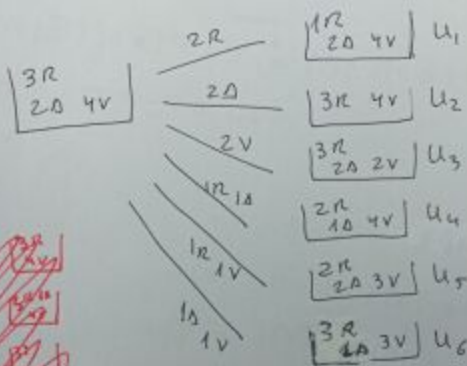
$$P(\Delta) = P(\Delta/U_1)P(U_1) + P(\Delta/U_2)P(U_2) + P(\Delta/U_3)P(U_3)$$

$$P(\Delta/U_1) = \frac{2}{8} \cdot \frac{1}{7} \cdot \frac{4}{6} \cdot \binom{3}{2} = \frac{1}{42} \cdot \frac{3!}{2!} = \frac{6}{42 \cdot 2} = \frac{3}{14}$$

$$P(\Delta/U_2) = \frac{3}{8} \cdot \frac{2}{7} \cdot \frac{4}{6} \cdot \binom{3}{2} = \frac{3}{42} \cdot \frac{3!}{2!} = \frac{9}{42} = \frac{3}{14}$$

$$P(\Delta/U_3) = \frac{3}{8} \cdot \frac{2}{7} \cdot \frac{3}{6} \cdot \binom{3}{2} = \frac{3}{56} \cdot \frac{3!}{2!} = \frac{9}{56}$$

b)



$$P(U_1) = \frac{\binom{3}{2}}{\binom{7}{2}} = \frac{3! \cdot 2! \cdot 2!}{2! \cdot 4!} = \frac{3 \cdot 2}{9 \cdot 8}$$

$$P(U_2) = \frac{\binom{3}{2}}{\binom{7}{2}}$$

$$P(U_3) = \frac{\binom{4}{2}}{\binom{7}{2}}$$

$$P(U_4) = \frac{\binom{3}{2} \cdot \binom{2}{1}}{\binom{7}{2}}$$

$$P(U_5) = \frac{\binom{4}{2} \cdot \binom{1}{1}}{\binom{7}{2}}$$

$$P(U_6) = \frac{\binom{3}{2} \cdot \binom{1}{1}}{\binom{7}{2}}$$

$B = "balle \text{ \textcolor{red}{grün}}"$

$$P(B) = \sum_{i=1}^6 P(B/U_i)P(U_i)$$

$$P(B/U_1) = \frac{2}{7} \quad P(B/U_2) = 0 \quad P(B/U_3) = \frac{2}{7} \quad P(B/U_4) = \frac{1}{7}$$

$$P(B/U_5) = \frac{2}{7} \quad P(B/U_6) = \frac{1}{7}$$

$$P(U_2 \cup U_4 \cup U_6 / B) = P(U_2/B) + P(U_4/B) + P(U_6/B)$$

$$P(U_2/B) = \frac{P(B/U_2)P(U_2)}{P(B)} = 0$$

$$P(U_4/B) = \frac{P(B/U_4)P(U_4)}{P(B)}$$

$$P(U_6/B) = \frac{P(B/U_6)}{P(B)}$$