(1.20.) $6\overset{1}{p},\ 6\overset{2}{f},\ 7\overset{3}{k}$ $\mathbb{P}(\text{mind a három szín előfordul}) =$

$$= \mathbb{P}(A_1 \cap A_2 \cap A_3) = \mathbb{P}(A)$$

$A_1 = \{\text{piros szerepel 5-ből}\}$

$A_2 = \{\text{fehér szerepel —||—}\}$

$A_3 = \{\text{kék szerepel —||—}\}$

$C_i = \{\text{i-edik színt nem húzzuk ki}\}$

$$P(A) = 1 - \mathbb{P}(C_p \cup C_f \cup C_k) =$$

$$= 1 - \mathbb{P}(C_p) - \mathbb{P}(C_f) - \mathbb{P}(C_k) + \mathbb{P}(C_p \cap C_k) + \mathbb{P}(C_p \cap C_F) +$$

$$+ \mathbb{P}(C_f \cap C_K) - \underbrace{\mathbb{P}(C_p \cap C_f \cap C_k)}_{0} =$$

$$= 1 - \frac{\binom{13}{5} + \binom{13}{5} + \binom{12}{5} - \binom{6}{5} - \binom{7}{5} - \binom{6}{5}}{\binom{19}{5}}$$

(1.21.) A, B, C

$$\Omega = \{(i, n) : i = A, B,\ n \geq 2\}$$

$$\Omega = \{AA, ACC, ACBB, ACBAA, \ldots, BB, BCC, BCAA, \ldots\}$$

$$\tilde{A} = \{\text{Anna nyer}\} = \{\overset{(A,2)}{AA}, \overset{(A,5)}{ACBAA}, \overset{(A,8)}{ACBACBAA}, \overset{(B,4)}{BCAA}, \underset{(B,7)}{BCABCAA}, \ldots\}$$

$$E_i := \{\text{i nyer először}\}$$

$$\mathbb{P}(\tilde{A} \cap E_A) = 2^{-2} + 2^{-5} + 2^{-8} + \ldots = 2^{-2} \cdot \frac{1}{1 - 2^{-3}} = \frac{2}{7}$$

$$\mathbb{P}(\tilde{A} \cap E_B) = 2^{-4} + 2^{-7} + \ldots = 2^{-4} \cdot \frac{1}{1 - 2^{-3}} = \frac{1}{14}$$

2

$$\mathbb{P}(\tilde{A}) = \mathbb{P}(\tilde{A} \cap E_A) + \mathbb{P}(\tilde{A} \cap E_B) = \frac{5}{14}$$