Insert Title

LazR ('3')

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Cuprins

$$\vec{P} = (AB - C)\vec{r} = O_n\vec{r} = \theta.$$

$$AB - C := (o_{ij}) = \begin{pmatrix} o_{11} & o_{12} & \dots & o_{1k} & \dots & o_{1n} \\ o_{21} & o_{22} & \dots & o_{2k} & \dots & o_{2n} \\ \dots & \dots & \dots & \dots & . & \dots \\ \dots & \dots & \dots & \dots & . & \dots \\ \dots & \dots & \dots & \dots & . & \dots \\ o_{n1} & o_{n2} & \dots & o_{nk} & \dots & o_{nn} \end{pmatrix}.$$

$$P := (p_i) = \begin{pmatrix} o_{11} & o_{12} & \dots & o_{1k} & \dots & o_{1n} \\ o_{21} & o_{22} & \dots & o_{2k} & \dots & o_{2n} \\ \dots & \dots & \dots & \dots & . & \dots \\ \dots & \dots & \dots & \dots & . & \dots \\ \dots & \dots & \dots & \dots & . & \dots \\ o_{n1} & o_{n2} & \dots & o_{nk} & \dots & o_{nn} \end{pmatrix} \cdot \begin{pmatrix} r_1 \\ r_2 \\ \dots \\ \dots \\ \dots \\ r_n \end{pmatrix} = \begin{pmatrix} \sum_{k=1}^{n} o_{1k}r_k \\ \sum_{k=1}^{n} o_{2k}r_k \\ \dots \\ \dots \\ \dots \\ \sum_{k=1}^{n} o_{nk}r_k \end{pmatrix}.$$

$$p_i = \sum_{k=1}^{n} o_{ik}r_k \Rightarrow r_j = \frac{p_i - \sum_{k=1,k\neq j} o_{ik}r_k}{o_{ij}}, o_{ij} \neq 0.$$

$$p = P(\vec{P} = 0) = P(\text{toate elementele lui } \vec{P} \text{ să fie } 0).$$

$$P(\text{un element oarecare al lui } \vec{P} \text{ să fie } 0) = P(p_i = 0) = P\left(r_j = -\frac{\sum_{k=1,k\neq j} o_{ik}r_k}{o_{ij}}\right).$$

$$\begin{aligned} P\left(r_j = -\frac{\sum_{k=1,k\neq j} o_{ik}r_k}{o_{ij}}\right) &= P\left(\sum_{k=1,k\neq j} o_{ik}r_k = 0 | r_j = 0\right) + P\left(\sum_{k=1,k\neq j} o_{ik}r_k = -o_{ij} | r_j = 1\right) \\ &= P(\Sigma = 0)\underbrace{P(r_j = 0)}_{=\frac{1}{2}} + P(\Sigma = -o_{ij})\underbrace{P(r_j = 1)}_{=\frac{1}{2}} \\ &= \frac{1}{2}\underbrace{(P(\Sigma = 0) + P(\Sigma = -o_{ij}))}_{\leq 1} \\ &\leq \frac{1}{2}. \end{aligned}$$

$$p = (p_1 = 0 \cap p_2 = 0 \cap \dots \cap p_i = 0 \cap \dots p_n = 0) \leq \frac{1}{2}.$$

□