

\bar{C}_i : El componente i no funciona : $P(\bar{C}_i) = 0.01$

$$P(\text{No Funciona el sistema}) = P(\bar{C}_1 \cup \bar{A}) = P(\bar{C}_1) + P(\bar{A}) - P(\bar{C}_1 \cap \bar{A})$$

No funciona el componente C_1 o el bloque A.

$$= \underbrace{P(\bar{C}_1)}_{0.01} + \underbrace{P(\bar{A})}_{?} - \underbrace{P(\bar{C}_1)}_{0.01} \cdot \underbrace{P(\bar{A})}_{?}$$

Prob. de que No Funcione el bloque A.

$$P(\bar{A}) = P(\bar{A}_1 \cap \bar{A}_2) = P(\bar{A}_1) \cdot P(\bar{A}_2)$$

No funciona ni lo de arriba (A_1)
ni lo de abajo (A_2)

$$\begin{aligned} P(\bar{A}_1) &= P(\bar{C}_2 \cup \bar{C}_3) = P(\bar{C}_2) + P(\bar{C}_3) - P(\bar{C}_2 \cap \bar{C}_3) \\ &= 0.01 + 0.01 - 0.01 * 0.01 \\ &= 0.0201 \end{aligned}$$

$$\begin{aligned} P(\bar{A}_2) &= P(\bar{C}_4 \cup \bar{C}_5 \cup \bar{B}) \\ &= P(\bar{C}_4) + P(\bar{C}_5) + P(\bar{B}) - P(\bar{C}_4 \cap \bar{C}_5) \\ &\quad - P(\bar{C}_4 \cap \bar{B}) - P(\bar{C}_5 \cap \bar{B}) \\ &\quad + P(\bar{C}_4 \cap \bar{C}_5 \cap \bar{B}). \end{aligned}$$

$$\begin{aligned}
 P(\bar{A}_2) &= 0.01 + 0.01 + P(\bar{B}) - 0.01 * 0.01 \\
 &\quad - 0.01 * P(\bar{B}) - 0.01 * P(\bar{B}) \\
 &\quad + 0.01 * 0.01 * P(\bar{B}) = 0.01999801
 \end{aligned}$$

$$\begin{aligned}
 \underline{P(\bar{B})} &= P(\bar{C}_6 \cap \bar{C}_3) = P(\bar{C}_6) \cdot P(\bar{C}_3) = 0.01 * 0.01 \\
 &= 0.0001
 \end{aligned}$$

$$\begin{aligned}
 P(\bar{A}) &= P(\bar{A}_1) \cdot P(\bar{A}_2) = 0.0201 * 0.01999801 \\
 &= 0.00040196.
 \end{aligned}$$

$$\begin{aligned}
 P(\text{No Func.}) &= P(\bar{C}_1) + P(\bar{A}) - P(\bar{C}_1) \cdot P(\bar{A}) \\
 &= 0.01 + 0.00040196 - 0.01 * 0.00040196 \\
 &= 0.0103979 \approx 0.0104
 \end{aligned}$$

$$P(\text{Funcione}) = 1 - P(\text{No Funcione}) = 1 - 0.0104$$

$$= 0.9896 \quad \checkmark$$