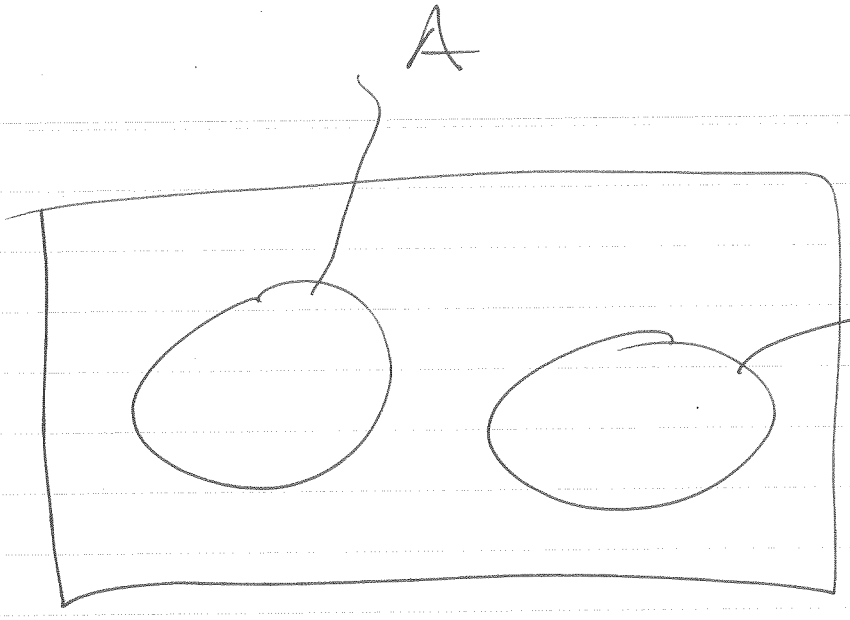
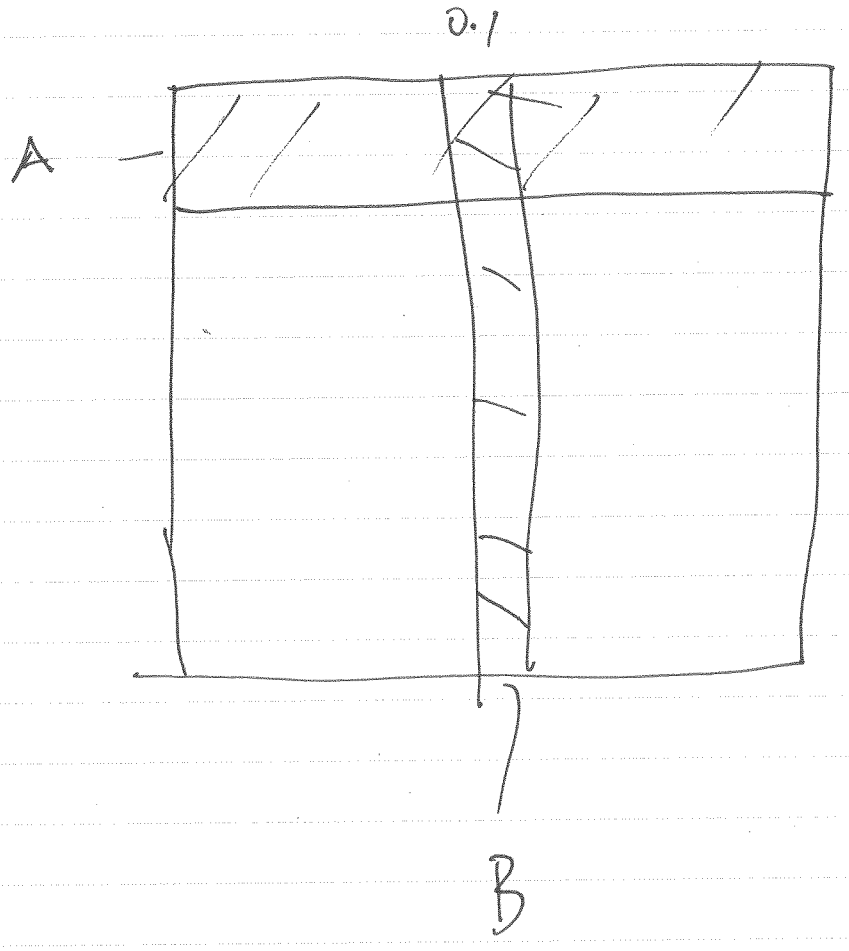
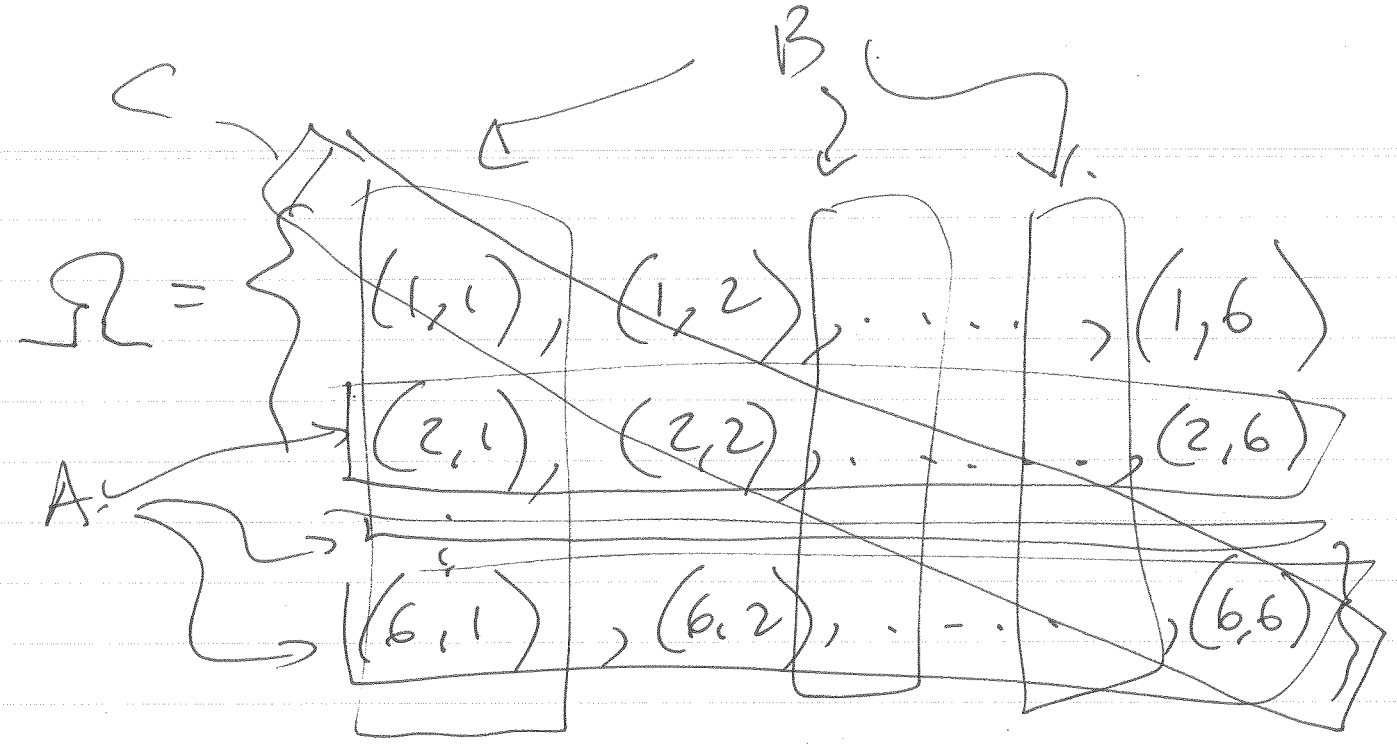


A, B mutually exclusive



A, B indep.



$$P(A) = P(B) = \frac{1}{2}$$

$$P(C) = \frac{1}{6}$$

$$P(A \cap B) = \frac{9}{36} = \frac{1}{4} = P(A)P(B)$$

$$P(A \cap C) = P\{(2,2), (4,4), (6,6)\}$$

$$= \frac{3}{36} = \frac{1}{12} = P(A)P(C)$$

$$P(B \cap C) = \cdots = \frac{1}{12} = P(B)P(C)$$

$$A \cap B \cap C = \emptyset \quad \text{so} \quad P(A \cap B \cap C) = 0 \neq P(A)P(B)P(C)$$