- It is easy to check that for a set-additive function μ,

$$\mu(A_1 \cup A_2) = \mu(A_1) + \mu(A_2) - \mu(A_1 \cap A_2) \tag{1}$$

which implies

$$\mu(A_1 \cap A_2) = \mu(A_1) + \mu(A_2) - \mu(A_1 \cup A_2). \tag{2}$$

- Note that (2) can be obtained from (1) by exchanging '$\cup$' by '$\cap$'.

- Note that (1) is a special case ($m = 2$) of the Inclusion-Exclusion Formula:

$$\begin{aligned} \mu\left(\bigcup_{k=1}^{m} A_k\right) &= \sum_{1 \leq i \leq m} \mu(A_i) - \sum_{1 \leq i < j \leq m} \mu(A_i \cap A_j) + \cdots \\ &\quad + (-1)^{m+1} \mu(A_1 \cap A_2 \cap \cdots \cap A_m). \end{aligned}$$