

# Assignment1: Probability

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## Exercise 1.2 (Disjunctive Random Variables)

$$\begin{aligned}P(A \vee B \vee C) &= P(A \vee B) + P(C) - P((A \vee B) \wedge C) \\&= P(A) + P(B) - P(A \wedge B) + P(C) - P(A \wedge C \vee B \wedge C) \\&= P(A) + P(B) + P(C) - P(A \wedge B) - P(A \wedge C) - P(B \wedge C) + P(A \wedge B \wedge C)\end{aligned}$$

Corresponding Venn diagram:

