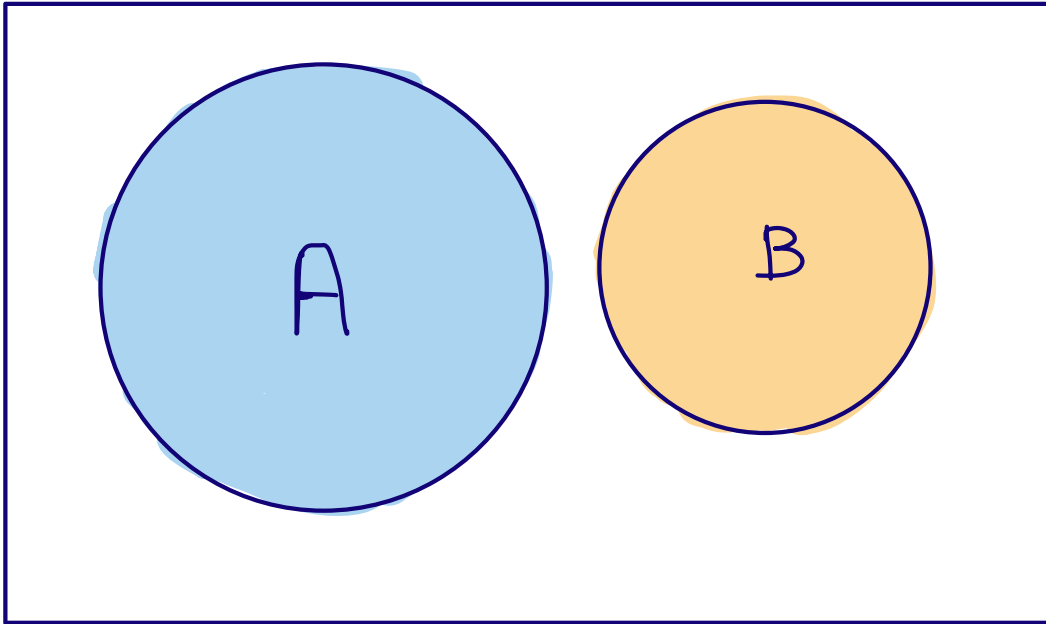


## Outcome Space

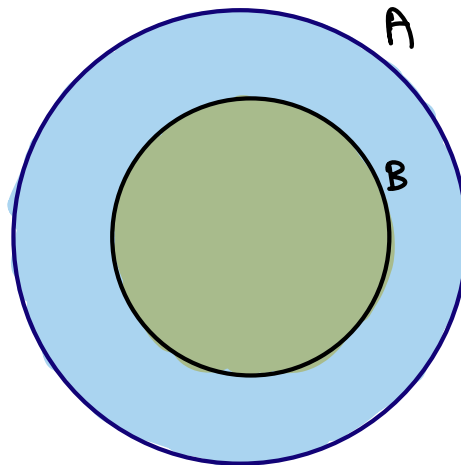


$$\begin{aligned}P(A \text{ or } B) &= P(A \cup B) \\&= P(A) + P(B)\end{aligned}$$

More generally.....

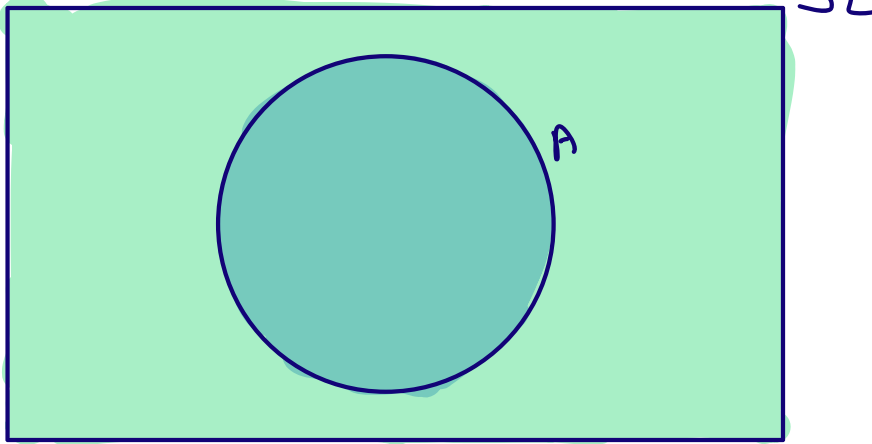
$$P(\hat{\bigcup}_{i=1} A_i) = \sum_{i=1}^{\hat{}} P(A_i)$$

## Nested Events



$$\begin{aligned}P(A \text{ but not } B) &= P(A \setminus B) \\&= P(A) - P(B)\end{aligned}$$

This is where the complement rule stems from:



$$\begin{aligned} P(A^c) &= P(\Omega \setminus A) &= P(\Omega) - P(A) \\ &= 1 - P(A) \end{aligned}$$