1 Distribution of a Random Variable

A Distribution is two connected sets. One is the set of all possible values Ω and the probabilities of those values. This can result in silly blunders :D. So when faced with random variables, list all possible values. (This will give partial credit!)

$$P(\text{rain today} = 0.65, P(\text{rain tomorrow}) = 0.45$$

$P(\text{rain today and tmr}) = P(\text{rain tmr}) \cdot P(\text{rain tmr} \mid \text{rain today})$

We can only say that this probability is bounded by $\leq .45$, because one is a subset of another. Similarly, if we are looking at the probability at least one day rains, we have an lower bound of $\geq .65$, because worse case tomorrow is inside today.

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