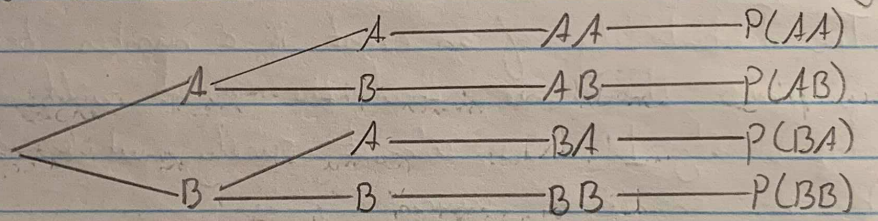
3) • Classical method: Suppose that a random experiment has a finite number of equally likely outcomes. Let $n(S)$ be the number of total outcomes (i.e. size of sample space S) and $n(A)$ be the number of outcomes respondent to event A. Then,

$$P(A) = n(A)/n(S)$$

- Accurate method, but requires strong prior information.
- A basic rule that will be used in this lecture.

Computing Probabilities

Tree Diagrams :



Punnett Squares :

P(Data 2) / P(Data 1)	P(A)	P(B)
P(A)	P(AA)	P(AB)
P(B)	P(BA)	P(BB)

*Example 1 -> Suppose you toss two coins. What is the probability that you get at least one tail?

- Random experiment: Toss two coins.
- Sample space : $S = \{HH, HT, TH, TT\}$
- Event : $A = \{\text{get at least one tail}\} = \{HT, TH, TT\}$

$$P(A) = n(A)/n(S) = 3/4$$