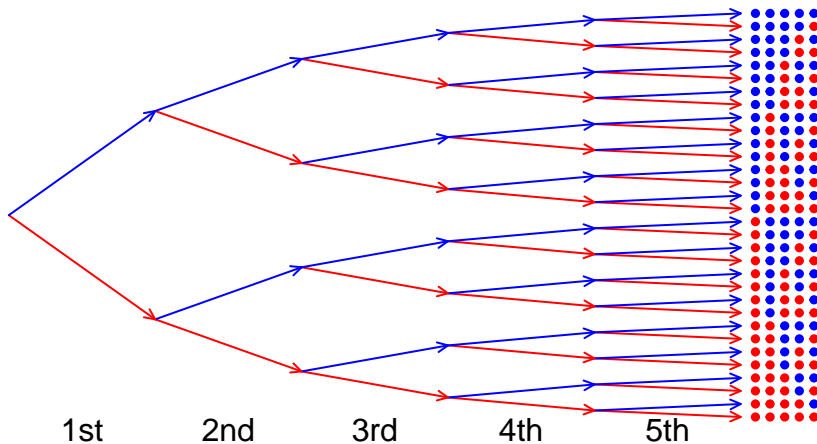


The 2^n possible sequences of n independent Bernoulli observations

Prob[i-th observation is BLUE, i.e. = 1] = π



With $n=5$, 32 possible sequences.

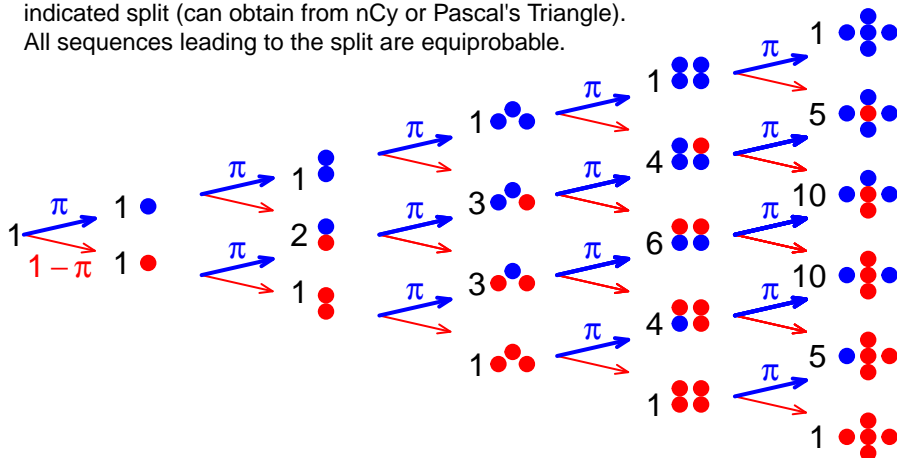
Below, sequences leading to the same positive:negative (RED/blue) 'split' are grouped.

The number of sequences leading to same split is shown in black.

With $n=5$, there are 6 possible splits

The probability of a given split is the probability of any one of the sequences leading to it, multiplied by the number of such sequences.

1,2,3, ... 10: Number of sequences that yield the indicated split (can obtain from nCy or Pascal's Triangle). All sequences leading to the split are equiprobable.



Binomial Probabilities*

$$1 \times \pi^5 (1-\pi)^0$$

$$5 \times \pi^4 (1-\pi)^1$$

$$10 \times \pi^3 (1-\pi)^2$$

$$10 \times \pi^2 (1-\pi)^3$$

$$5 \times \pi^1 (1-\pi)^4$$

$$1 \times \pi^0 (1-\pi)^5$$

* in R: `dbinom(0:5,size=5,prob=0.xx)`