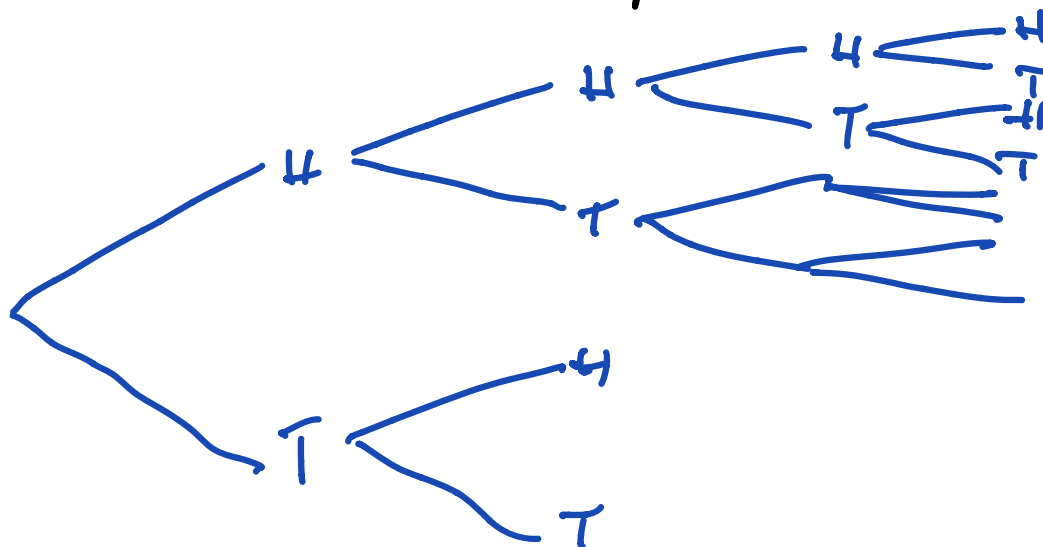


Coin Flipping Again

How do we tell if a coin is fair?

You observe 7 Hs in 10 flips is the coin fair?



H H T H H T T H H H
T H H H H T H H T H

$${}_{10}C_7 = {}_{10}C_3 = 120 = \frac{n}{2} = \frac{120}{2^{10}} = 0.1171875$$

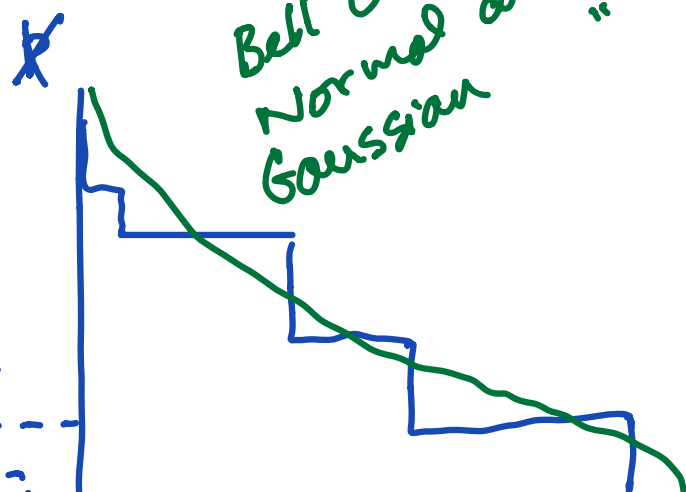
$p(7 \text{ Hs in } 10)$

$2 \cdot 2 \cdot 2 \cdot \dots = 2 = 2^{10}$

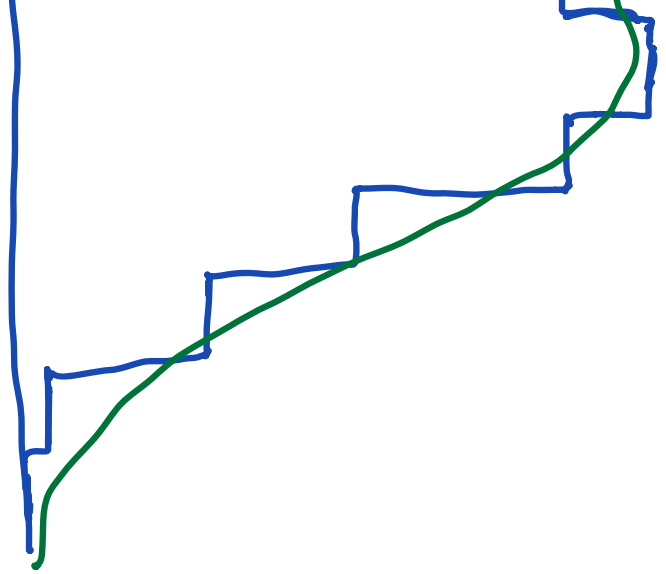
$$\frac{{}_{10}C_5}{2^{10}} = \frac{n}{N} = 0.24609375$$

H	T	# ways
10	0	$1 = {}_{10}C_{10} = 1$
9	1	${}_{10}C_9 = 10$
8	2	${}_{10}C_8 = 45$
7	3	${}_{10}C_7 = 120$
6	4	${}_{10}C_6 = 210$

Bell curve
Normal distribution
Gaussian



5	5	${}^{10}C_5 = 252$
4	6	${}^{10}C_4 = 210$
3	7	120
2	8	45
1	9	10
0	10	1



$$p(\geq 7 \text{ Hs on 10}) = \frac{n}{N} = \frac{1+10+45+120}{2^{10}} = \frac{176}{2^{10}} = 0.171875 \approx 17\%$$

15 rows

10 fly
