

Day 7

5:25pm

8th Dec-2022

CORRELATION IS NOT CAUSATION

SICK

IN HOSPITAL	DIED	%
40	4	10
HOME	DIED	%
2000	20	0.25

CHANCES OF DYING IN A HOSPITAL
ARE 40% LARGER AT
HOME.

SHALL YOU STAY AT HOME
YES NO

Relative probability

Fair coin \div 4 flips

\rightarrow P(Exactly one head) : $\frac{0.0625 + 0.0625 + 0.0625 + 0.0625}{0.0625} = 0.25$

\rightarrow P(First flip is only head) : $\frac{0.0625}{0.0625} = 4 //$

Truth Table

	Flip 1	Flip 2	Flip 3	Flip 4	Probability
	H	T	T	T	0.0625
	T	H	T	T	0.0625
	T	T	H	T	0.0625
	T	T	T	H	0.0625

$$\frac{P(\text{Exactly one head})}{P(\text{First flip is head})} = \frac{0.25}{0.5} = 0.5$$

4
other possibilities exist

11 T

0 > 125

Truth table : First Flips is head

Flip 1	Flip 2	Flip 3	Flip 4	Probability
H	T	T	T	0.0625
H	H	T	T	0.0625
H	H	H	T	0.0625
H	H	H	H	0.0625
H	T	H	T	0.0625
H	T	T	H	0.0625
H	T	H	H	0.0625
H	H	T	H	0.0625
				<hr/>
				0.5

Coin 1 : Fair

Coin 2: $P(H) = 0.9$

• $\begin{matrix} H & H & T \\ T & H & H \end{matrix} \Leftrightarrow \begin{matrix} \text{My flips} \\ \text{Your flips} \end{matrix}$

What is the probability that
we flipped the same type of coin