

Bayes Theorem

Mach1: 30 wrenches / hr

Mach2: 20 wrenches / hr

Out of all produced parts:

We can SEE that 1% are defective

Out of all defective parts:

We can SEE that 50% came from mach1

And 50% came from mach2

Question:

What is the probability that a part produced by mach2 is defective = ?

$$\rightarrow P(\text{Mach2}) = 20/50 = 0.4$$

$$\rightarrow P(\text{Defect}) = 1\%$$

$$\rightarrow P(\text{Mach2} \mid \text{Defect}) = 50\%$$

$$\rightarrow P(\text{Defect} \mid \text{Mach2}) = ?$$

$$P(\text{Defect} \mid \text{Mach2}) = \frac{P(\text{Mach2} \mid \text{Defect}) * P(\text{Defect})}{P(\text{Mach2})}$$