

Probability



Axiom 1:

Probability of an
outcome in $[0,1]$



Axiom 2:

Sum of all possible
outcomes equals 1

$$\begin{array}{cc} H & T \\ 1/2 & + 1/2 = \end{array} \quad \text{1}$$

Axiom 3:

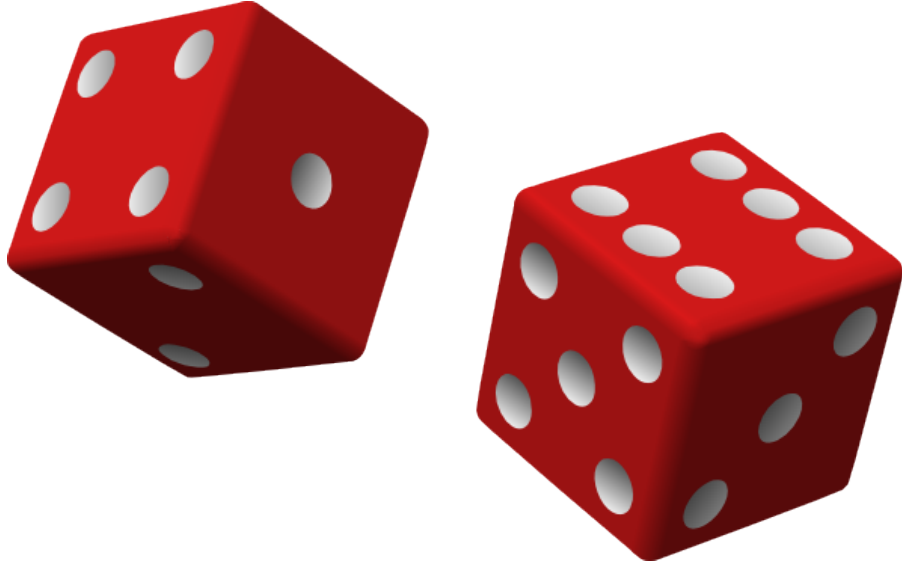
A subset of B, then

$$\text{Prob}(B) \geq \text{Prob}(A)$$

$$\{H\} \subseteq \{H, T\}$$

$$\underline{\frac{1}{2}} \leq \underline{1}$$





<http://en.wikipedia.org>

Classical



$$\text{Prob}(4) = \frac{1}{6}$$

$$\text{Prob}(\text{Even}) = \frac{1}{2}$$

$$\text{Prob}(\text{Odd}) = \frac{1}{2}$$





Frequency



Do more words
begin with r or
have r as their
third letter?

690

1190



Rain Next June 7th?

100

26 Rain

74 No

26%





Subjective



Shelly majored in political science and was very involved in the college republicans. Write down probabilities for the following events:

Event A: Flight Attendant 5%

Event B: Blogger 10%

Event C: Flight Attendant while finishing her MBA

Event D: Medical Field

10%

15%



Axiom 1? $[0, 1]$

Axiom 2? $\varepsilon = 1$

Axiom 3? $A \subseteq B$



Event A: Flight
Attendant

590

Event C. Flight
Attendant while
finishing her MBA

1020

$$C \subseteq \underline{A}$$



Will housing
prices go up
this year?

38%



Frequency

Or

~~Subjective?~~

MODEL



Model Thinking

Scott E Page

