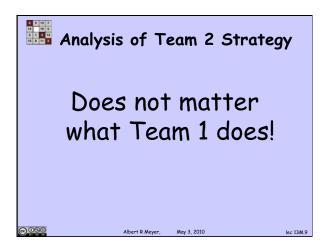
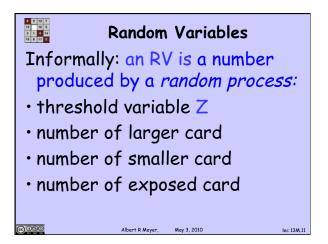
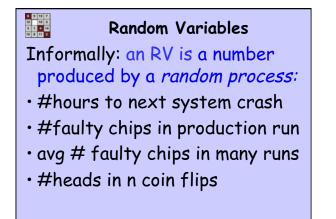


Analysis of Team 2 Strategy  
So 1/7 of time, sure win.  
Rest of time, win 1/2, so  
$$Pr{Team 2 wins} =$$
  
 $\frac{1}{7} \cdot 1 + \left(1 - \frac{1}{7}\right) \cdot \frac{1}{2} = \frac{4}{7}$ 

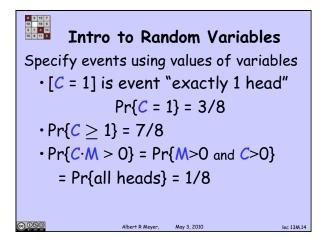


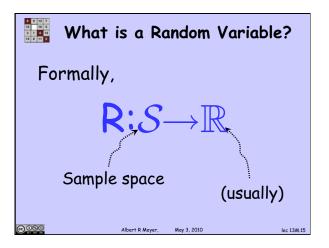


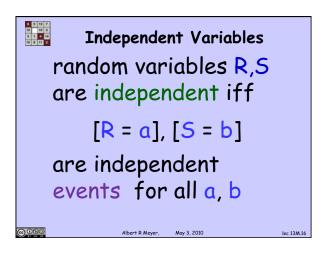


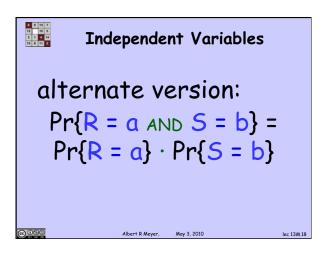


**Intro to Random Variables**  
Example: Flip three fair coins  
$$C ::= \#$$
 heads (Count)  
 $M ::= \begin{cases} 1 & \text{if all Match,} \\ 0 & \text{otherwise.} \end{cases}$ 

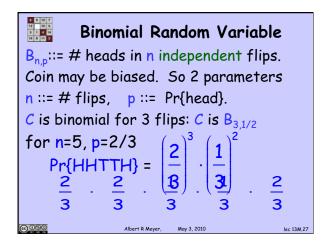


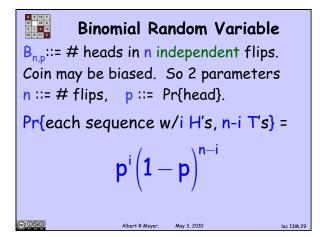


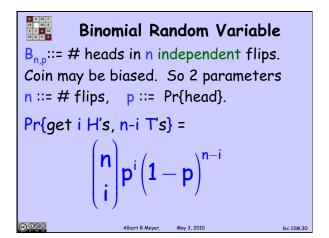


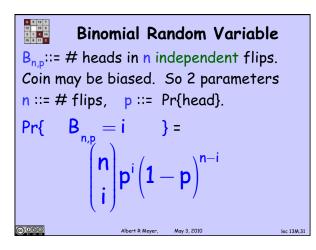


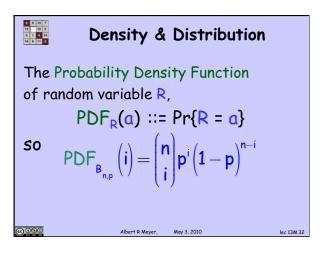
Binomial Random Variable B<sub>n,p</sub>::= # heads in n independent flips. Coin may be biased. So 2 parameters n ::= # flips, p ::= Pr{head}. C is binomial for 3 flips: C is B<sub>3,1/2</sub> for n=5, p=2/3 Pr{HHTTH} = Pr{H} · Pr{H} · Pr{T} · Pr{T} · Pr{H} (by independence)











## Uniform Distribution R is uniform iff PDF<sub>R</sub> is constant. R ::= outcome of fair die roll. Pr{R=1} = Pr{R=2} = ... = Pr{R=6} = 1/6 S ::= 4-digit lottery number Pr{S = 0000} = Pr{S = 0001} = ... = Pr{S = 9999} = 1/10000

0000



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