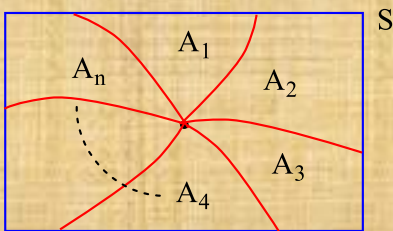


Chapter 13

PROBABILITY

TOTAL PROBABILITY THEOREM:

Let $\{A_1, A_2, \dots, A_n\}$ be a partition of the sample space S , and suppose that each of the events $A_1, A_2, \dots, A_n$ has non-zero probability of occurrence.



Let A be any event associated with S . Then

$$P(A) = P(A_1)P(A/A_1) + P(A_2)P(A/A_2) + \dots + P(A_n)P(A/A_n)$$

$$P(A) = \sum_{i=1}^n P(A_i)P(A/A_i)$$

This is called total probability theorem.