MAT434: Theory of Mathematical Statistics - Joint Distributions

Independent Random Variables [1]

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Independent Random Variables

Definition

Random variables $X_1, X_2, X_3, \ldots, X_n$ are said to be *independent* if their joint cdf factors into the product of their marginal cdf's:

$$F(x_1, x_2, \ldots, x_n) = F_{X_1}(x_1) F_{X_2}(x_2) \ldots F_{X_n}(x_n)$$

for all $x_1, x_2, \ldots, x_n$.

This definition holds for both continuous and discrete random variables:

References


John A. Rice.
Mathematical Statistics and Data Analysis.
Cengage Learning, 3rd edition, 2006.