

IMM - DTU

02405 Probability

2003-11-12

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$$\text{Cov}(X, Y)$$

IMM - DTU

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$$\text{Cov}(X, Y) = E(XY) - E(X)E(Y)$$

IMM - DTU

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IMM - DTU

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$$\text{Cov}(X, Y) = E(XY) - E(X)E(Y) = E(XY)$$

since $E(X) = 0$

IMM - DTU

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IMM - DTU

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IMM - DTU

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$$E(XY) = E(X^3)$$

IMM - DTU

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$$P\left(Y > \frac{1}{4} \mid |X| > \frac{1}{2}\right)$$

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$$P\left(Y > \frac{1}{4} \mid |X| > \frac{1}{2}\right) = 1 \neq \frac{1}{2} = P\left(Y > \frac{1}{4}\right)$$

thus X and Y are *not* independent.