Information Theory and Data Analysis

Homework #2 (2024-2025), Questions

Q1: Correlations implied by maximum-entropy

Consider three variables, x_1, x_2, and x_3, with mean zero and unit variance, and with correlations $\langle x_1 x_2 \rangle = a$ and $\langle x_2 x_3 \rangle = b$. In the maximum-entropy distribution that satisfies these constraints, what is $c = \langle x_1 x_3 \rangle$?

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