COMP 760 - Assignment 4 - Due: Mar 30th.

You are allowed to collaborate in solving these questions, but each person should write and submit her own solution.

1. Suppose that \( f : \{0, 1\}^n \times \{0, 1\}^n \rightarrow \{0, 1\} \) satisfies \( f(x, y) = f(y, x) \) for all \( x \) and \( y \). Show that the measure \( \mu \) that achieves the maximum of \( IC_\mu(f) \) also satisfies \( \mu(x, y) = \mu(y, x) \).

2. Adopt the Braverman-Rao compression to the setting of the external information cost. However, in this case your compression must not introduce any error.

3. Use the previous question to show that

\[
\lim_{n \rightarrow \infty} \frac{CC_{\mu^n}(f^n)}{n} \leq I^\text{ext}_\mu(f).
\]