

6.441 Transmission of Information

Problem Set 7

Spring 2010

Due date: April 13

Problem 1

a) Consider a Bernoulli $p < 0.5$ source U with entropy $H(U)$. Describe a linear coding strategy that is asymptotically lossless.

b) The compressed source is now transmitted over a BSC with $q < 0.5$. Describe a linear coding strategy that is asymptotically error-free.

c) Describe a single linear transformation that is asymptotically error-free to map U to codewords of the BSC (joint source-channel coding).

Problem 2

Problem 9.4 in Cover and Thomas (**first** edition), or 8.3 in Cover and Thomas (**second** edition)

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