

- Let $\{X_k, k \geq 1\}$ be an i.i.d. information source with generic random variable $X \sim p(x)$, where $|\mathcal{X}| < \infty$.
- Consider a source sequence $\mathbf{x} = (x_1, x_2, \dots, x_n)$ and a reproduction sequence $\hat{\mathbf{x}} = (\hat{x}_1, \hat{x}_2, \dots, \hat{x}_n)$.
- The components of $\hat{\mathbf{x}}$ take values in a reproduction alphabet $\hat{\mathcal{X}}$, where $|\hat{\mathcal{X}}| < \infty$.
- In general, $\hat{\mathcal{X}}$ may be different from \mathcal{X} .
- For example, $\hat{\mathbf{x}}$ can be a quantized version of \mathbf{x} .