

Definition 5.2 The weakly typical set $W_{[X]_\epsilon}^n$ with respect to $p(x)$ is the set of sequences $\mathbf{x} = (x_1, x_2, \dots, x_n) \in \mathcal{X}^n$ such that

$$H(X) - \epsilon \leq -\frac{1}{n} \log p(\mathbf{x}) \leq H(X) + \epsilon,$$