- Let n be large.

- $\Pr\{\tilde{\mathbf{X}}(1) \text{ jointly typical with } \mathbf{Y}\} \to 1$.

- For $i \neq 1$, $\Pr\{\tilde{\mathbf{X}}(i) \text{ jointly typical with } \mathbf{Y}\} \approx 2^{-nI(X;Y)}$.

- If $|\mathcal{C}| = M$ grows at a rate $< I(X;Y)$, then

$$\Pr\{\tilde{\mathbf{X}}(i) \text{ jointly typical with } \mathbf{Y} \text{ for some } i \neq 1 \}$$

can be made arbitrarily small.

- Then $\Pr\{\hat{W} \neq W\}$ can be made arbitrarily small.