

- Assume $\epsilon < 0.5$.
- Two possible messages, A and B , are to be sent through the channel.
- **Coding Scheme 1**

$$\text{Encoding} \quad \begin{cases} A \rightarrow 0 \\ B \rightarrow 1 \end{cases} \quad \text{Decoding} \quad \begin{cases} 0 \rightarrow A \\ 1 \rightarrow B \end{cases}$$

- A decoding error if and only if a crossover occurs. Therefore, $P_e = \epsilon$.