

- A discrete channel can be used repeatedly at every time index  $i = 1, 2, \dots$ .
- Assume the noise for the transmission over the channel at different time indices are independent of each other.
- To properly formulate a DMC, we regard it as a subsystem of a discrete-time stochastic system which will be referred to as “the system”.
- In such a system, random variables are generated sequentially in discrete-time.
- More than one random variable may be generated instantaneously but sequentially at a particular time index.