Expected code length

- Fix the messsage length T
- Suppose the message is generated at random according to the distribution $p(c_1, \ldots c_T)$
- Then the expected code length is

$$\sum_{c_1, \ldots c_T} p(c_1, \ldots c_T) \lceil -\log_2 p(c_1, \ldots c_T) \rceil$$