NSRG.XX: Formalised Networks

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Formal Methods in Networked Systems

The Discrete Noiseless Channel

In the more general case with different length of symbols and constraints on the allowed sequences, we make the following definition:

The capacity C of a discrete channel is given by

$$C = \lim_{T \to \infty} \frac{logN(T)}{T}$$

where N(T) is the number of allowed signals of duration T.

Theorem

$$C = \lim_{T \to \infty} \frac{LogAX_0^T}{T} = logX_0$$