The information contained in uniform distributions

MathsNET
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- Explain the meaning of the term functional

- State Khitchines four axioms for the information

- Explain what we mean when we state that a function or functional is monotonically decreasing.

- Now explain why the information in a uniform distribution decreases monotonically with the size of the sample space.

The information contained in uniform distributions

- If the uniform probability distribution p has a sample space with m outcomes and the probability distribution q has a sample space with n outcomes. How many outcomes are there in the sample space for the joint probability distribution $p \otimes q$. N.B. p and q are independent.

- Explain why the information in a uniform probablity distribution must be a function of $\frac{1}{n}$ where n is the number of

- Hence, explain why the information in a uniform distribution, p, is given by: $I(p) = -k \ln n$.