

Information Theory^{*}

Manuel Gijón Agudo

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1. Introduction

Definition 1: Information the information conveyed by a source is a function $I : S \rightarrow [0, \infty)$ where S is a **source**¹ with the properties:

- $I(s_i)$ is a decreasing function of the probability p_i , with $I(s_i) = 0$ if $p_i = 1$.
- $I(s_i s_j) = I(s_i) + I(s_j)$

¹A **source** is a finite set S together with a sequence of random variables X_i whose range is S