



# Mutual Information

## 1 Why

## 2 Definition

The mutual information of a joint distribution over two random variables is the entropy of the product of the marginal distributions relative to the joint distribution.

### 2.1 Notation

Let  $R$  be the set of real numbers. Let  $A$  and  $B$  be two non-empty sets. Let  $p : A \times B \rightarrow R$  be a distribution.