

Independences of observables X and Y – $i_{Y|X}$ and $i_{X|Y}$ – are definite as ratio of the conditional and marginal Shannon's entropies of levels of X and Y :

$$i_{Y|X} = \frac{H(Y|X)}{H(Y)}, \quad i_{X|Y} = \frac{H(X|Y)}{H(X)}, \quad 0 \leq i \leq 1.$$

The founded values mean: if $i_{Y|X} = 0$, then Y is one-valued function of X ; if $i_{X|Y} = 0$, then X is one-valued function of Y ; if $i_{Y|X} = 1 = i_{X|Y}$, then X and Y are mutually independent. It is important, that $i_{Y|X} < 1 \Leftrightarrow i_{X|Y} < 1$.

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