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Information

Experience shows that the **information value** of certain *news* depends on their probability.

$$\$\$ I \{E i\} = f(P i) \$\$$$

in which (I_{E_i}) means the information value. In this aspect the more unexpected or unlikely (rumour) a *news* is the bigger it's *news* value.

So the \(f\) function was selected according to Shannon's suggestion:

$$$$$
 $I_E = log_2 \frac{1}{p_E} = -log_2(p_E) [bit] $$

The properties of a logarithm function play an important role in the modeling procedure of the quantitative properties of a given information.

If an event space consist of two equal-probability event (p(E 1) = p(E 2) = 0.5) then,

$$$$$
 $I_{E_1} = I_{E_2} = log_2 \frac{1}{0.5} = -log_2 2 = 1 [bit] $$

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