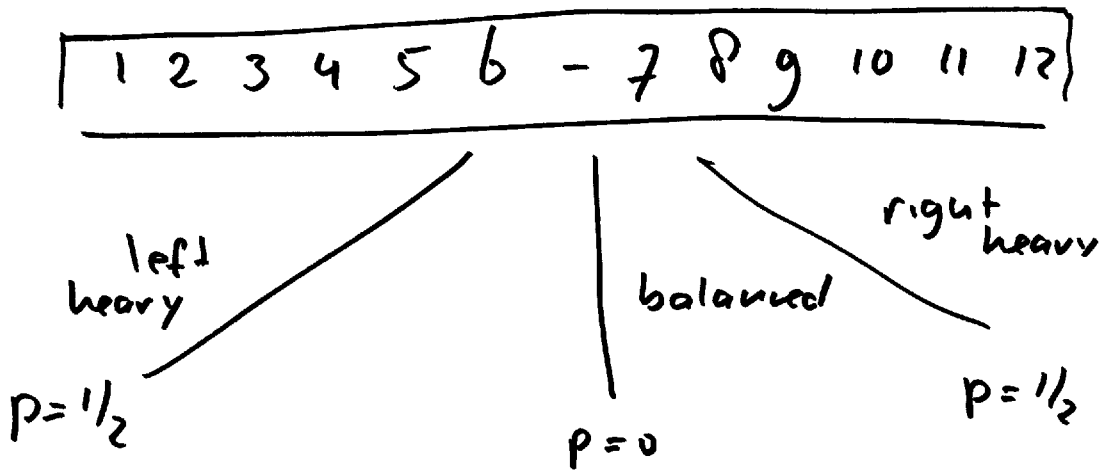
Telecommunications Network Systems

False coin

1)



The entropy before measurement is

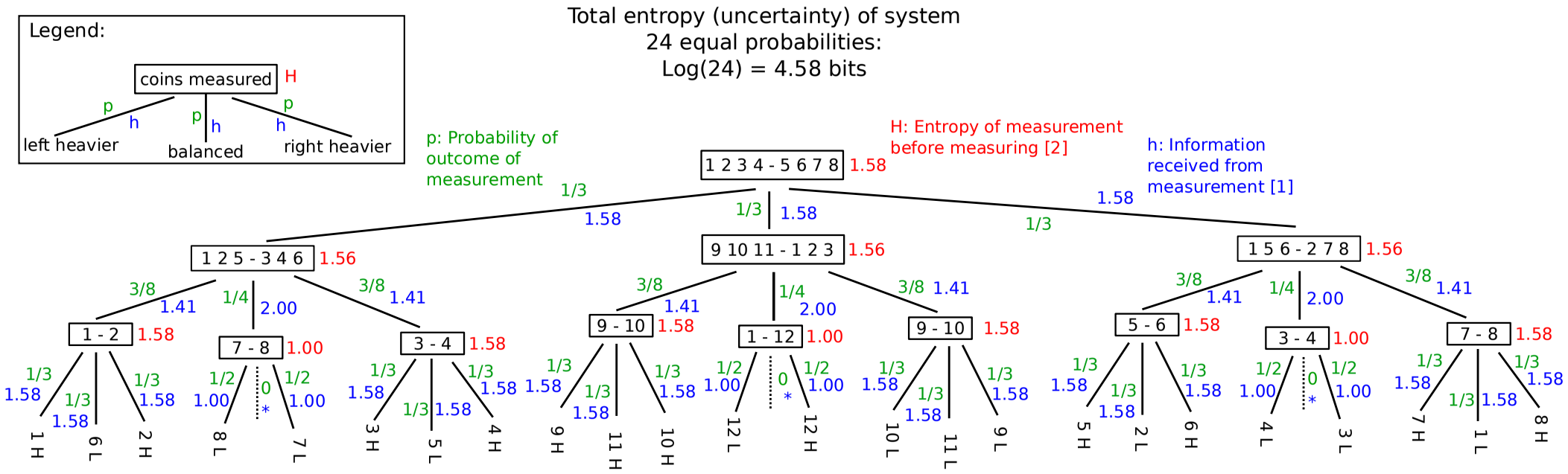
$$H = -\sum_{i=1}^{3} P_i \log(P_i) = -\frac{1}{2}\log\left(\frac{1}{2}\right) + 0\log(0)$$

$$-\frac{1}{2}\log\left(\frac{1}{2}\right) = 1$$

The maximum we can get is

$$\forall i : P_i = \frac{1}{N} = \frac{1}{3}$$

$$H = \left[-\frac{1}{3}\log\left(\frac{1}{3}\right)\right] \times 3 = 1.58$$



[1]: h = -Log(p)
Following a path, sum of information must be 4.58 bits
because, knowing the coin, all entropy (uncertainty) is then gone

[2]: H = Σ p h = - Σ p Log(p)

Peter Stallinga. Universidade do Algarve 2015