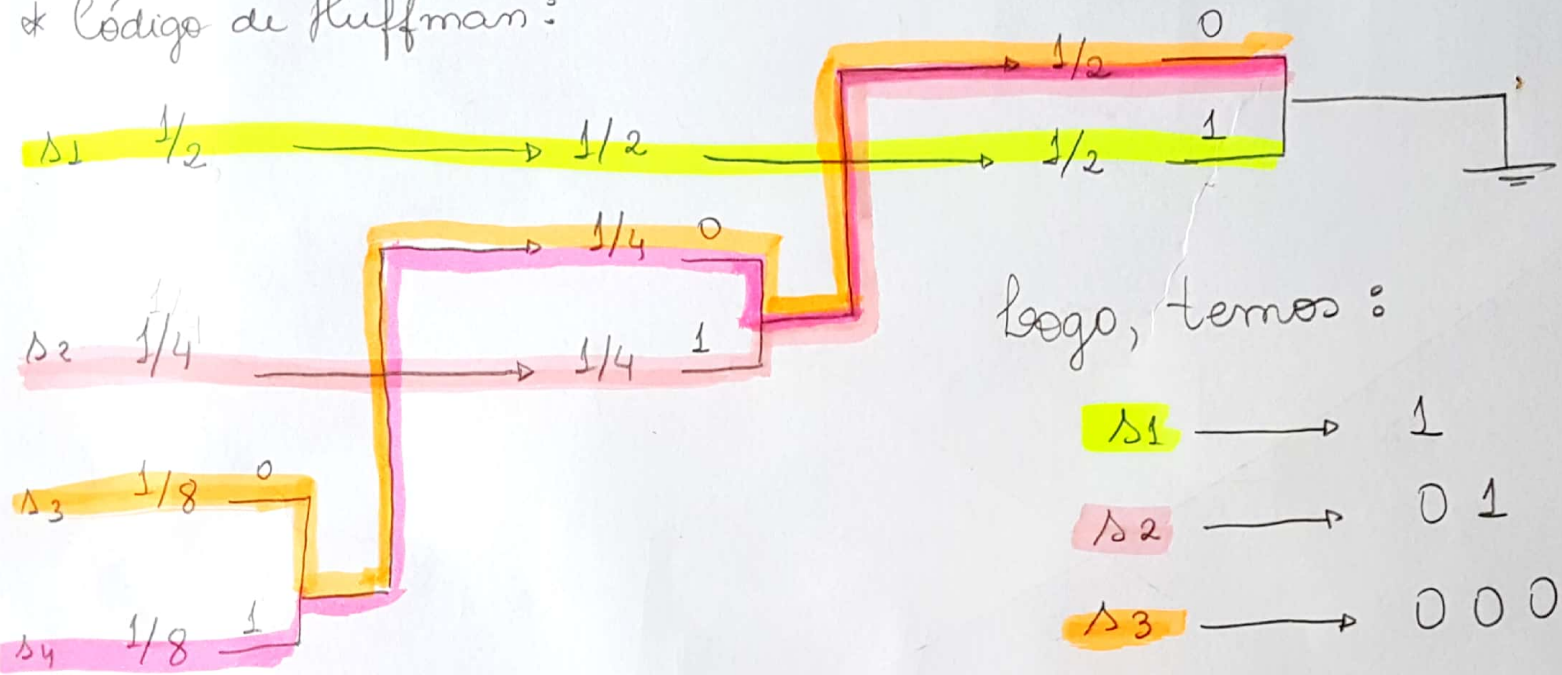
Exemplo 2: Código de Huffman

$S = \{s_1, s_2, s_3, s_4\}$ e $P(s_1) = 1/2$; $P(s_2) = 1/4$; $P(s_3) = 1/8$ e $P(s_4) = 1/8$.

* Código de Huffman:



Logo, temos:

$s_1 \longrightarrow 1$

$s_2 \longrightarrow 0\ 1$

$s_3 \longrightarrow 0\ 0\ 0$

$s_4 \longrightarrow 0\ 0\ 1$

* Cálculo da eficiência:

$$H(S) = \frac{1}{2} \times \log_2 \frac{1}{(1/2)} + \frac{1}{4} \times \log_2 \frac{1}{(1/4)} + 2 \times \left(\frac{1}{8} \times \log_2 \frac{1}{(1/8)} \right) = 1{,}75$$

$$L = 1 \times 1/2 + 2 \times 1/4 + 3 \times 1/8 + 3 \times 1/8 = 1{,}75$$

Logo: $\eta = \frac{H(S)}{L} = \frac{1{,}75}{1{,}75} = 1 \times 100\% = 100\%$

Código ótimo!

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