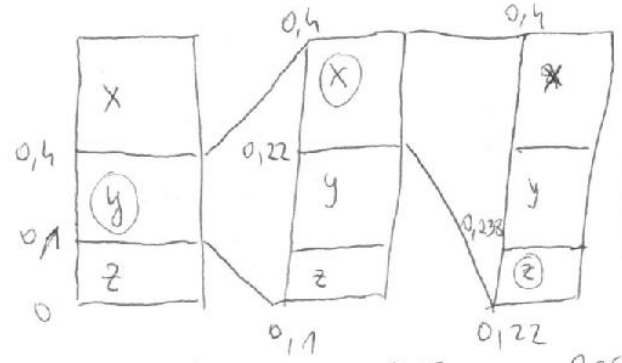
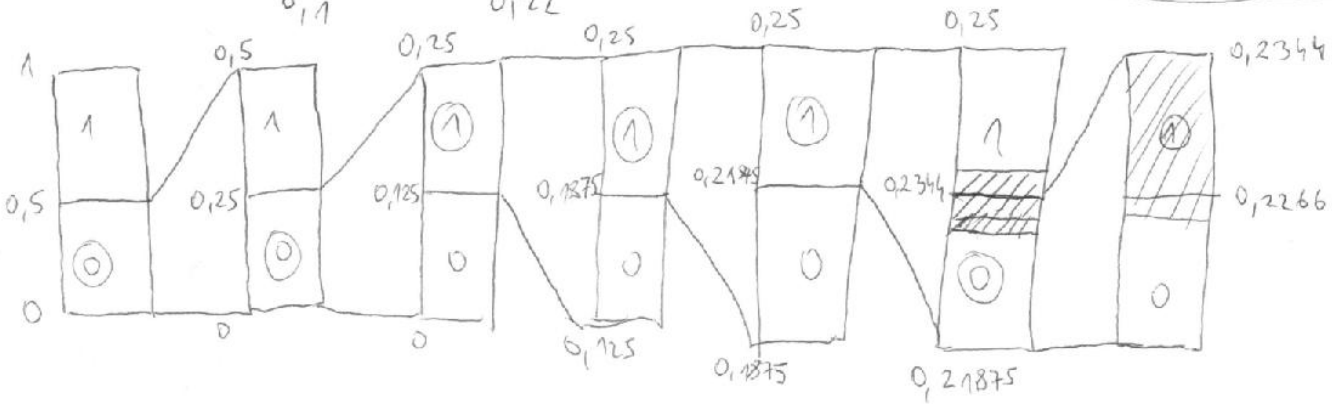
1. $A = \{x, y, z\}$ $P = \{0,6 , 0,3 , 0,1\}$ vhod = '~~y~~xz'



interval
$[0,22 , 0,238)$

izhod = 0011101

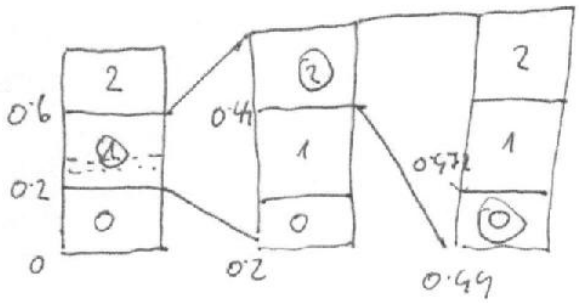


2.

$0,0111101$
$+ \quad 1$
$0,0111110$

$0111101 \rightarrow 0,0111101 = \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{64} = \frac{29}{64} \Rightarrow \left[\frac{29}{64}, \frac{30}{64}\right)$

$= [0,4531 , 0,4688)$



NIZ = '~~0~~120'

↓

KONEC

3.

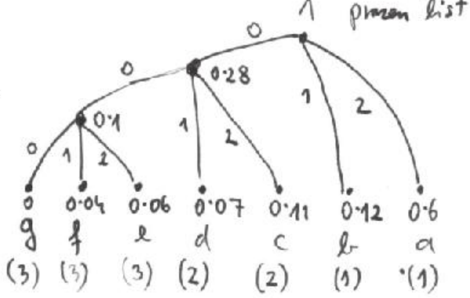
Učinkovitost : $\eta = \frac{H(X)}{L \cdot \log r}$ $r=3$ | $H(X) = H(0.6, 0.12, 0.11, 0.07, 0.06, 0.04) = 1{,}857$ bit

a) Huffman

Št. listov: $a = r + k \cdot (r-1)$

$k=1$: $3 + 1 \cdot 2 = 5$

$k=2$: $3 + 2 \cdot 2 = 7 > 6$ → dodaj 1 prazen list



$L = 0 \cdot 3 + 0.04 \cdot 3 + 0.06 \cdot 3 + 0.07 \cdot 2 + 0.11 \cdot 2 + 0.12 \cdot 1 + 0.6 \cdot 1 = 1{,}38$ trit

$\eta = \frac{1{,}8574 \text{ bit}}{1{,}38 \cdot \log_2 3} = 0{,}8492$

b) Shannon → $\lceil -\log_r p_i \rceil$

x_i	p_i	l_i	P_k	kod
a	0·6	1	0	0
b	0·12	2	0·6	12
c	0·11	3	0·72	201
d	0·07	3	0·83	211
e	0·06	3	0·90	220
f	0·04	3	0·96	221

← NI TREBA! P_k pretvori v bazo r, vzemi prvih l_i števk

$L = 0.6 \cdot 1 + 0.12 \cdot 2 + 0.11 \cdot 3 + 0.07 \cdot 3 + 0.06 \cdot 3 + 0.04 \cdot 3 = 1{,}68$ trit

$\eta = \frac{1{,}8574 \text{ bit}}{1{,}68 \text{ trit} \cdot \log_2 3} = 0{,}6976$

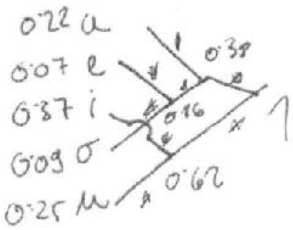
c) Fano → združuj v skupine po r, ki imajo približno enake verjetnosti

x_i	p_i			kod	l_i
a	0·6	0		0	1
b	0·12	1	0	10	2
c	0·11		1	11	2
d	0·07	2	0	20	2
e	0·06		1	21	2
f	0·04		2	22	2

$L = 0.6 \cdot 1 + 0.12 \cdot 2 + 0.11 \cdot 2 + 0.07 \cdot 2 + 0.06 \cdot 2 + 0.04 \cdot 2 = 1{,}4$ trit

$\eta = \frac{1{,}8574 \text{ bit}}{1{,}4 \text{ trit} \cdot \log_2 3} = 0.8371$

4.



z	d. kz	kz	
a	2	00	+1, <<0
i	2	01	+1, <<0
u	2	10	+1, <<1
e	3	110	+1, <<0
o	3	111	

→ sortiraj po d. kz (l_i), nato po z

10|111|01

u o i