Huffman coding

B C A A D D D C C A C A C A C

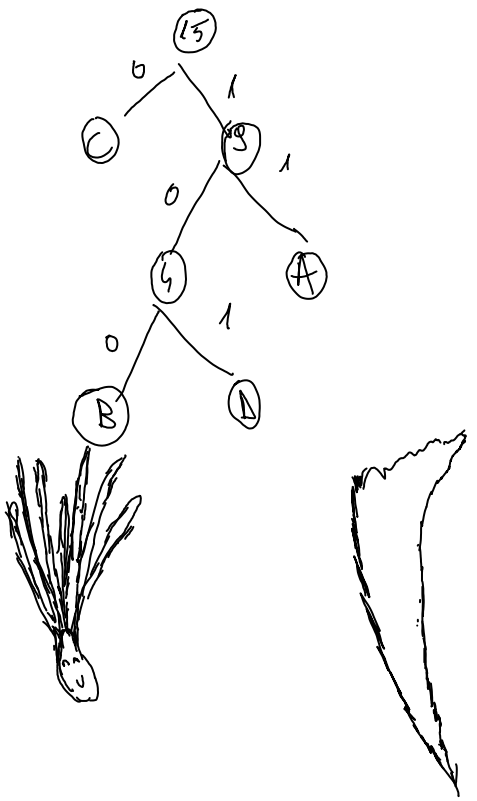
~~B - 1~~ ~~B A 4~~

C - 6 C - 6 C - 6

~~A - 5~~ BDA - 9

A - 5

~~A~~ - 3



C → 0 6

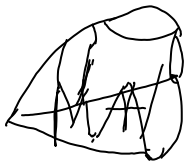
A → 11 → 10

B → 100 → 3

D → 101 → 9

A C C 11 0 0 28 b.t.

101 100 11 → DBA



Trie

(B,1)

(D,3)

(A,15)

(C,6)

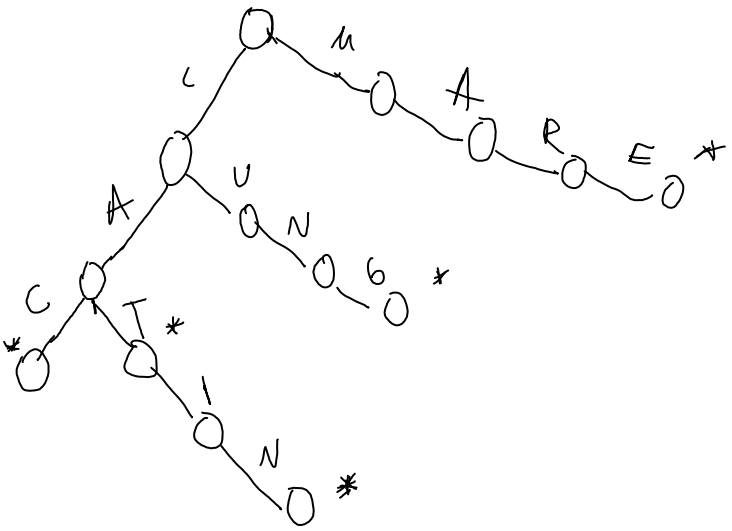
LAC

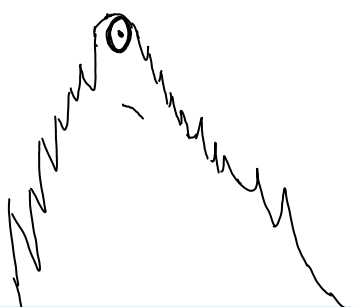
LATIN

LAT

LUNG

MARE





$\oplus$ ^

$a = 6 = 110$

$b = 4 = 100$ $(\oplus)$

$10 \; 5 \; 4 \; 2$ (5, 4 → 6; 10, 5 → 4)

$6 \oplus 4 = 2$

$x \oplus x = 0$

$x \oplus 0 = x$

$5 \quad -6 \quad [\,3 \quad 4 \quad -2 \quad 3\,] \quad -3$

8

S : 5 −1 2 6 4 7 −4

0

$[i, j]$

$v_i + v_{i+1} + \dots + v_j = S_j - S_{i-1}$

$S_0 = 0$ | 0

$S_0 = 5$ | 5

→ $S_2 = -1$ | 0

$S_3 = 2$ | 3

$[i, j] = v_i \oplus v_{i+1} \oplus \dots \oplus v_j$

$S_j = v_1 \oplus v_2 \oplus \dots \oplus v_j$

$S_{i-1} = v_1 \oplus v_2 \oplus \dots \oplus v_{i-1}$

LS:

$S_i = v_1 \oplus v_2 \oplus v_3 \oplus \dots \oplus v_4$

1 0 5 4 2

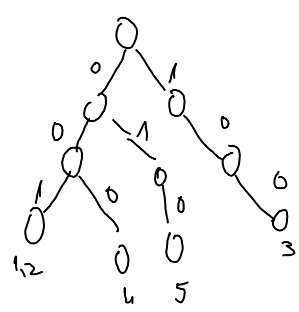
110
001

	1	0	5	4	2
$S\oplus$ | 0	1	1	4	0	2

1. 001

1. 001

4. 100

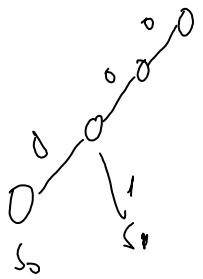


(XOR max trie)

$S_5 = 2 = 010$

0 - 000

2 - 010



$S_1 = 001$

$S_2 = 001$

$S_3 = 100$