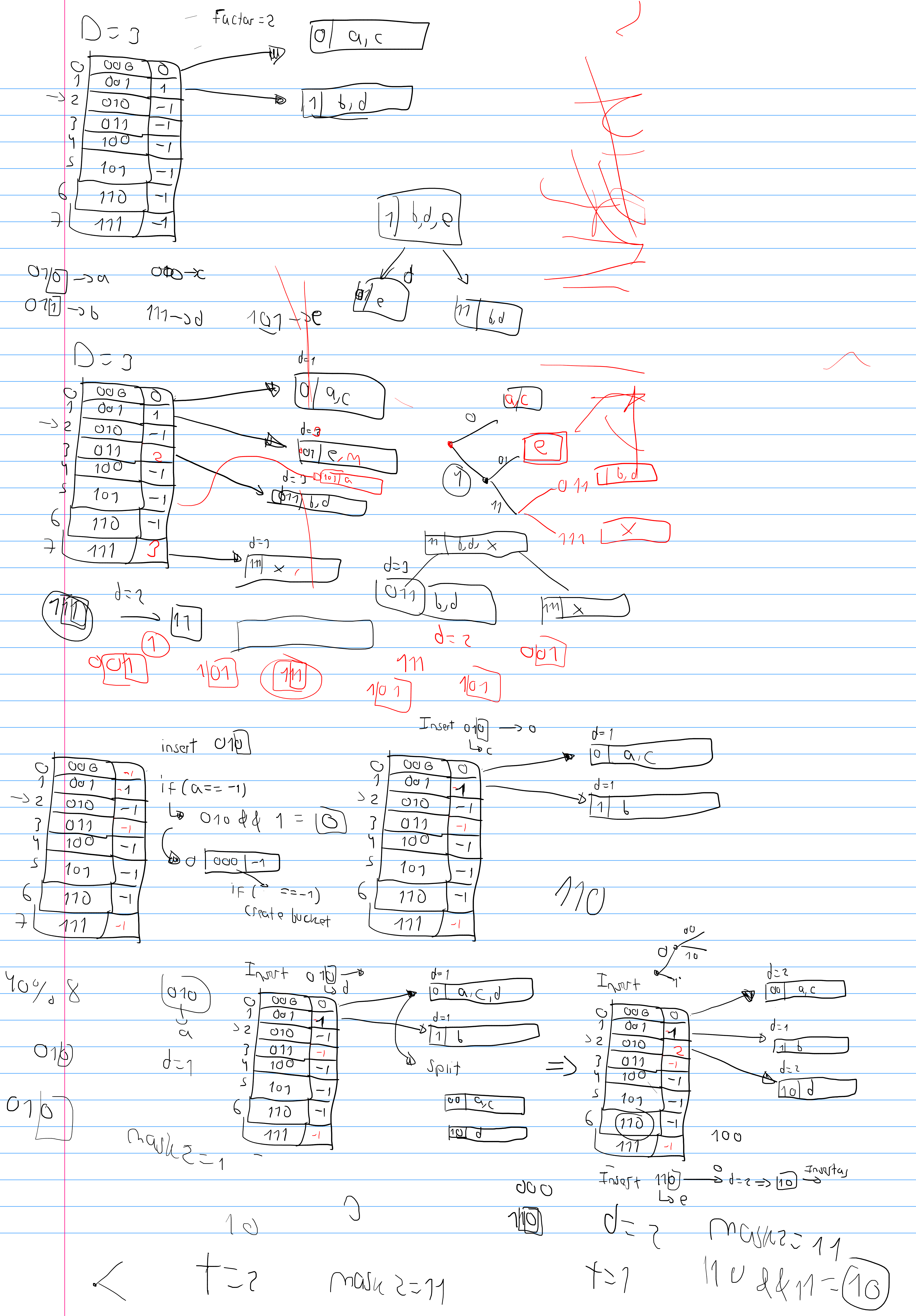
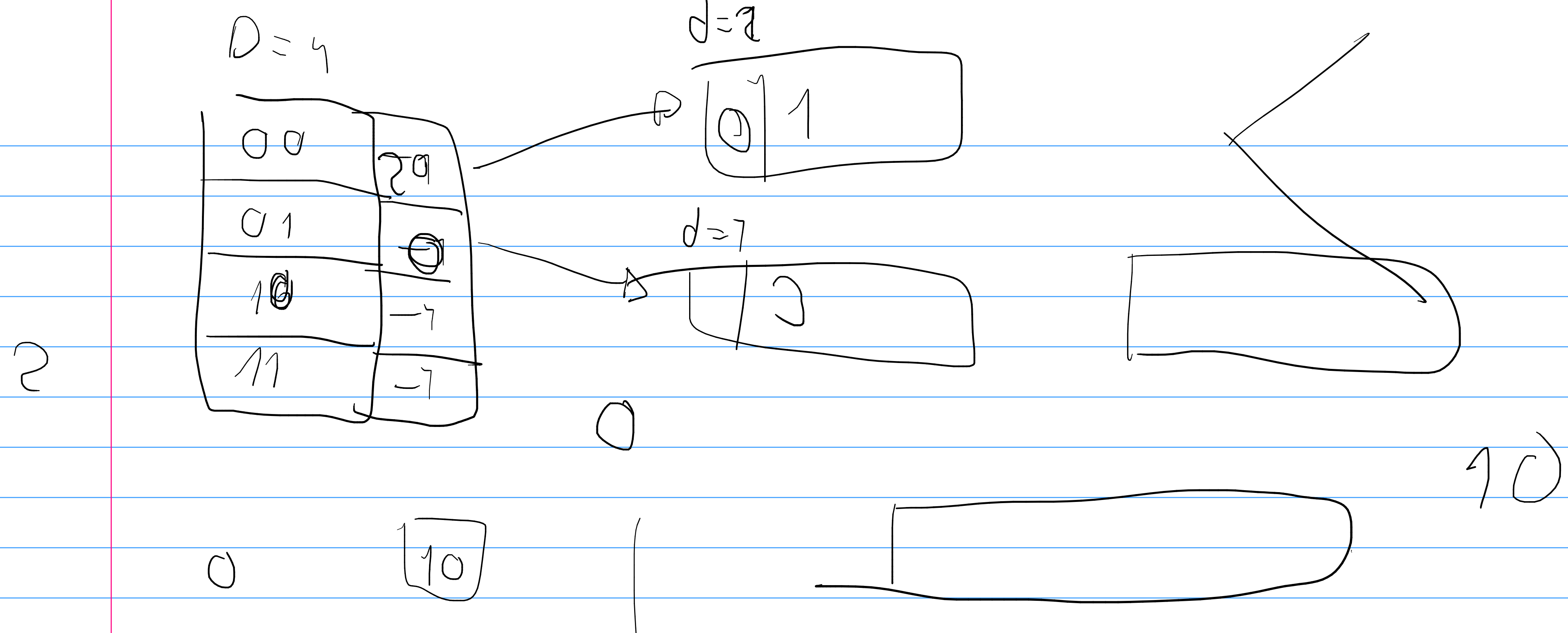


D = 3
Factor = 2
0 | a, c
1 | b, d
1 | b, d, e
01 | e
11 | b, d
010 → a
011 → b
000 → c
111 → d
101 → e
d = 1
0 | a, c
d = 3
001 | e, m
d = 3
101 | a
011 | b, d
d = 1
111 | x
d = 2
11
a/c
e
| b, d
011
111
x
11 | b, d, x
d = 3
011 | b, d
111 | x
d = 2
001
101
111
insert 010
if (a == -1)
010 && 1 = 0
000 | -1
if (== -1)
Create bucket
Insert 010 → 0
c
d = 1
0 | a, c
d = 1
1 | b
110
40 % 8
010
a
d = 1
mask = 1
Insert 010 → d
d = 1
0 | a, c, d
d = 1
1 | b
Split
00 | a, c
10 | d
Insert
00
10
d = 2
00 | a, c
d = 1
1 | b
d = 2
10 | d
100
Insert 110 → 0 d = 2 ⇒ 10 → Insertar
e
000
110
d = 2
mask = 11
110 && 11 = 10
t = 2
mask = 11
t = 1



for(buckets)

a	b	c
00	10	10

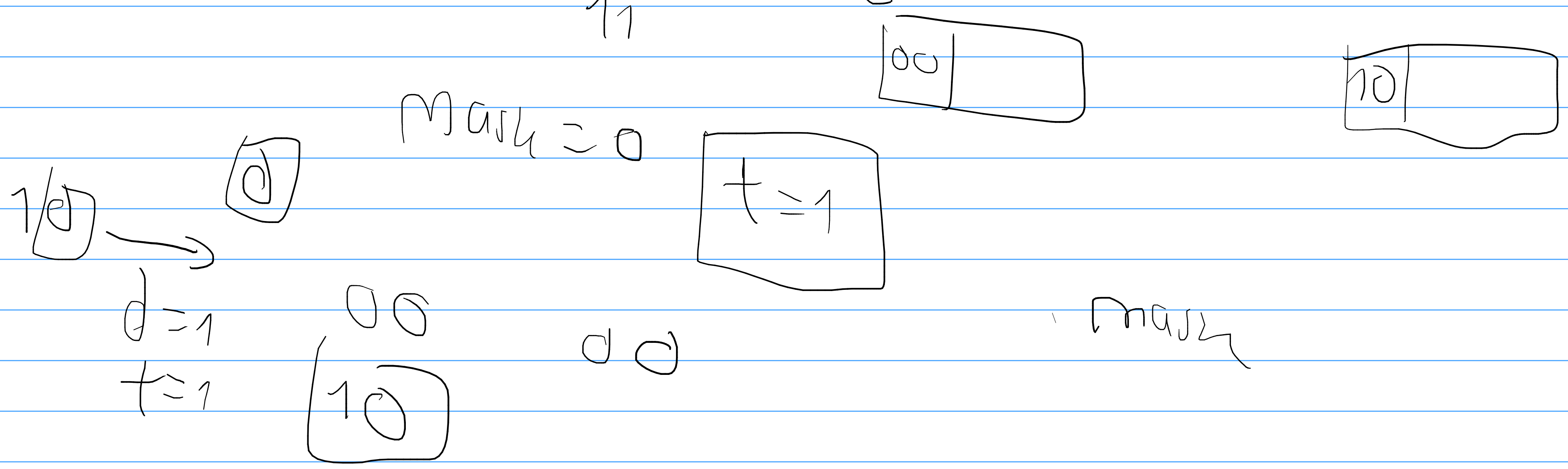
a, b, c

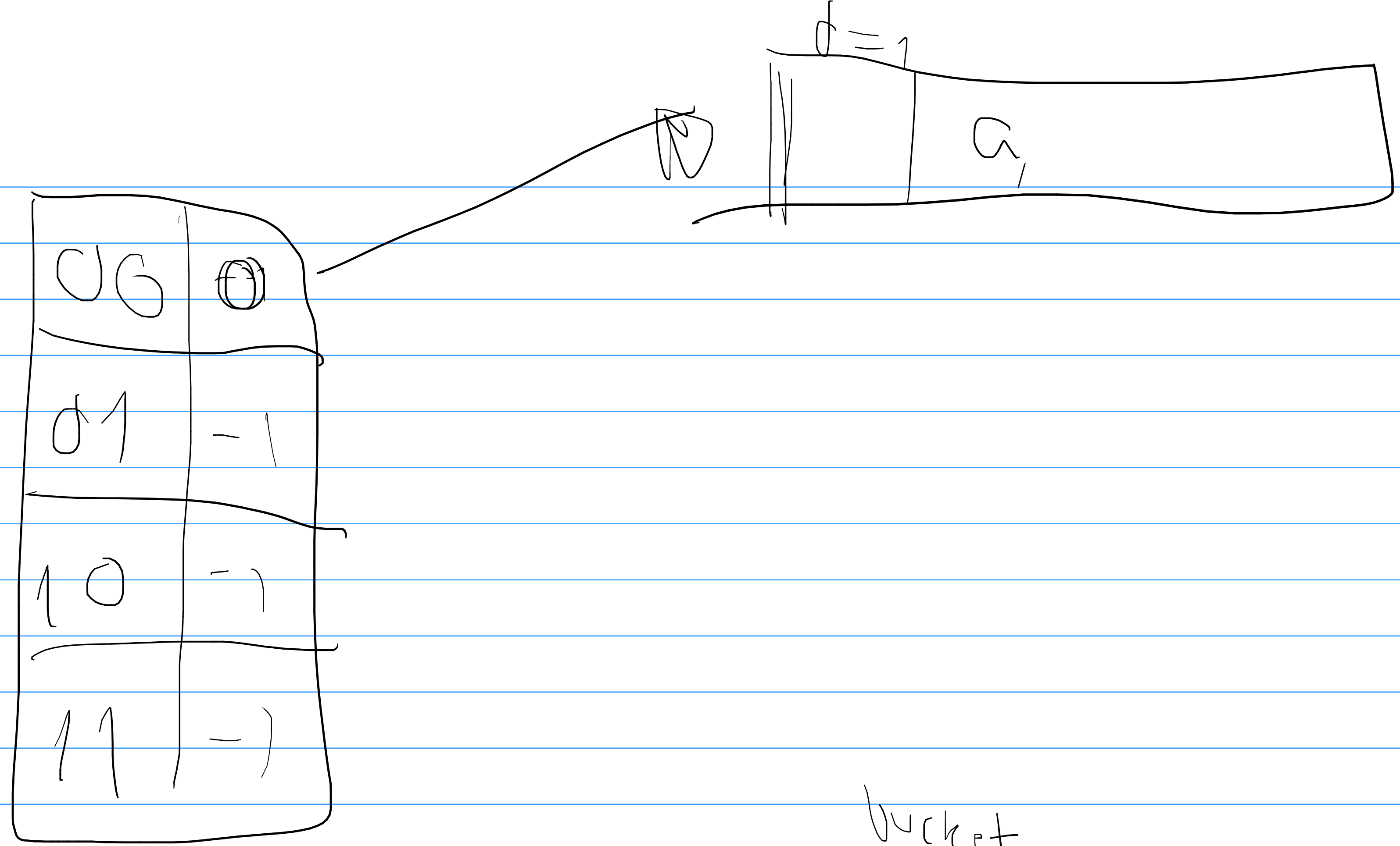
Split (bucket, ~~index~~ mask, t)

t = 2

11

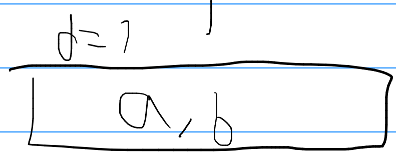
bucket

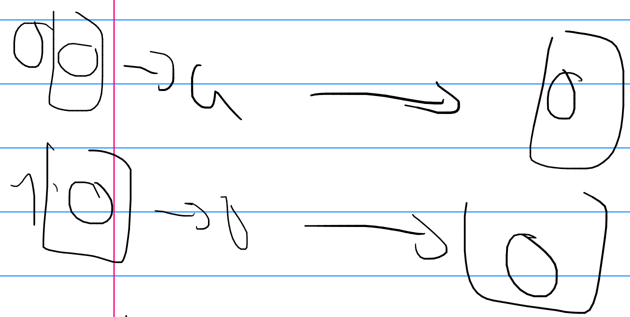




bucket

Abrimos





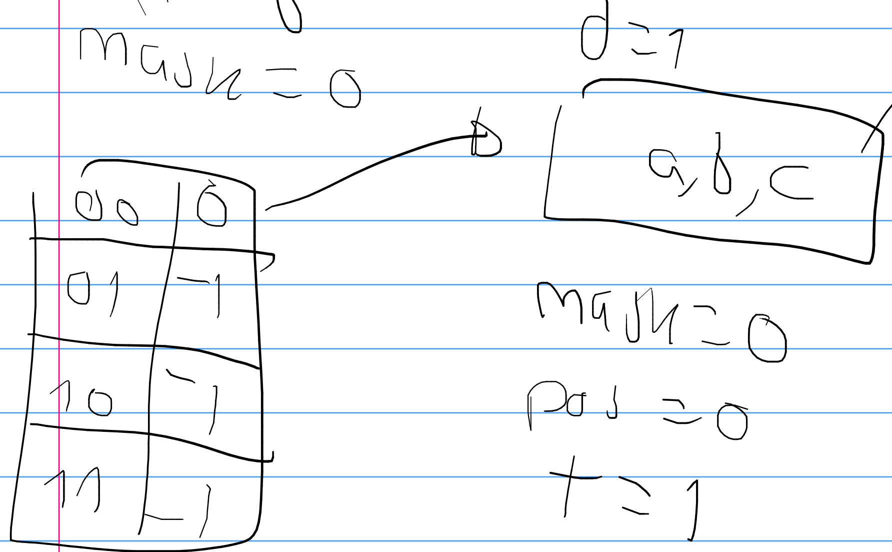
int pos = mask = 0

t = 1

key = b

index = b

mask = 0



→ lleno

mask = 0

pos = 0

t = 1

mask2 = 1

new_index = 0 | 10 = 10

new_mask = 1 | 10 = 11

d=2 left

a,c

right d=2

10

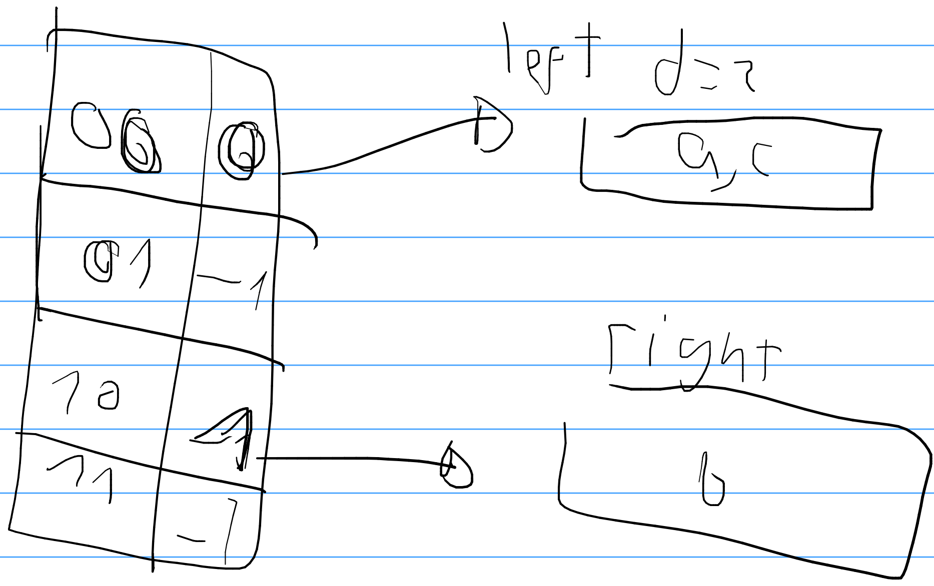
value

a → 00 → 00

b → 10 → 10

c → 00 → 00

⇒



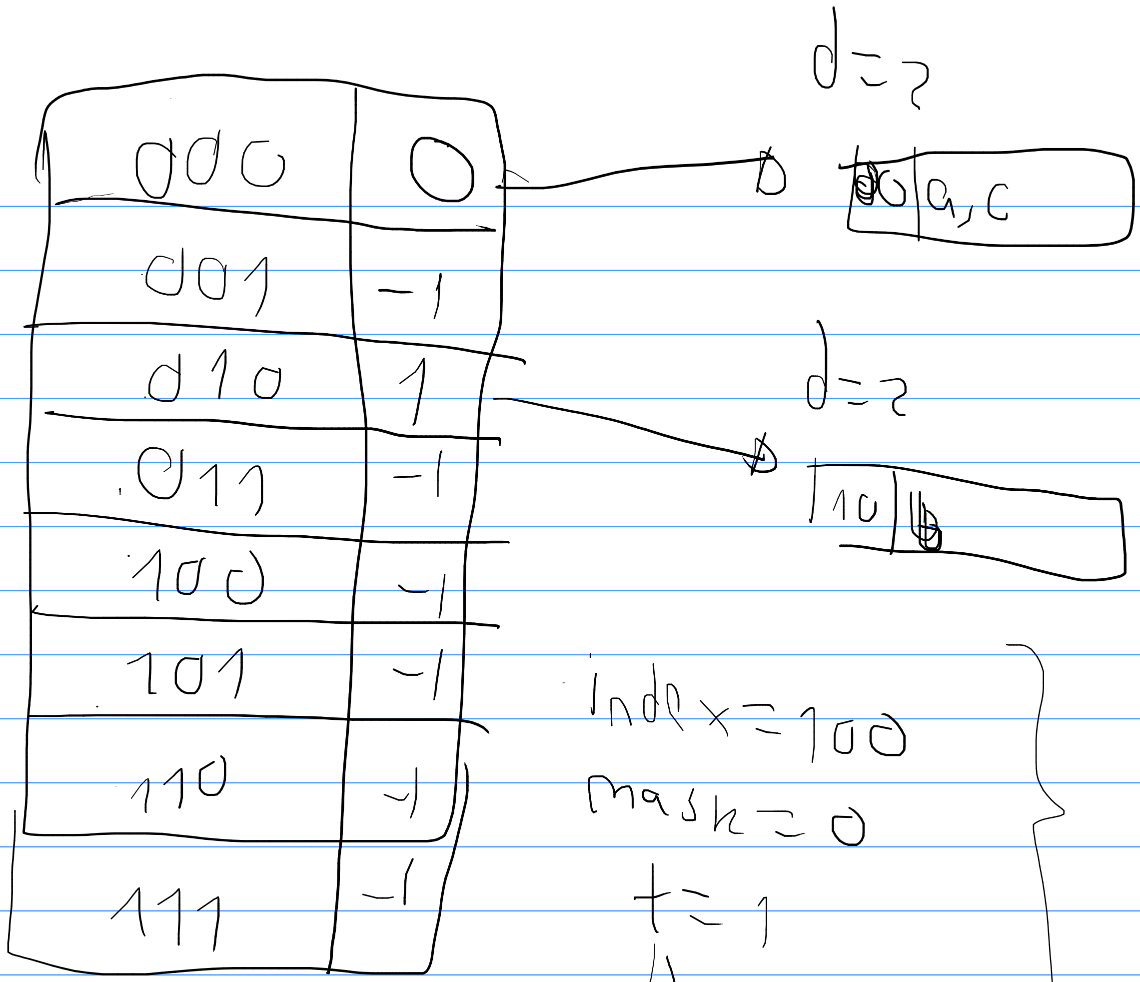
d=1

1 | 10 → 11

d=2

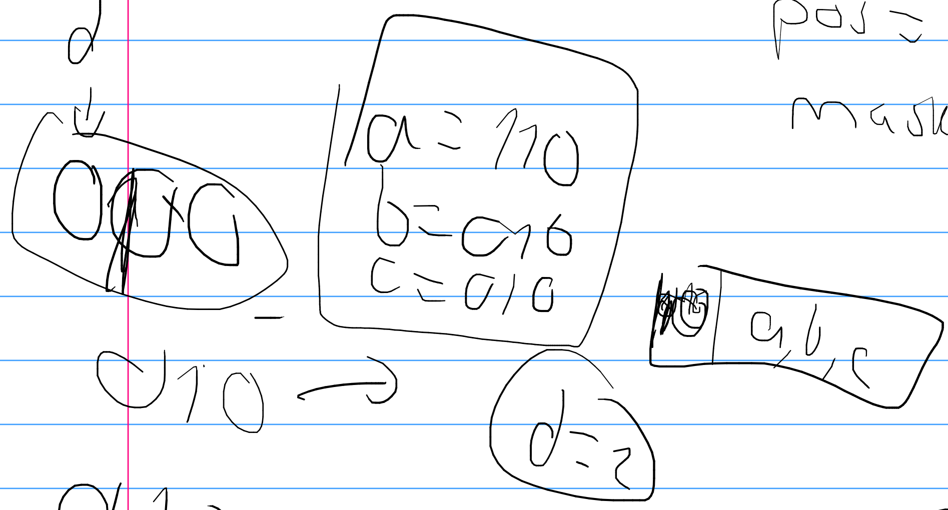
000

Insert 100 "d"



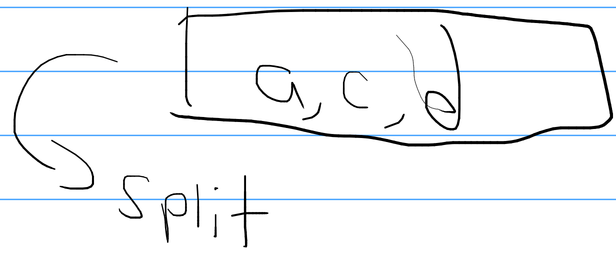
index = 100
mask = 0
t = 1
d = 2
pos = 0
mask2 = 1

while ( )
↳ 1ª Iteración
mask2 = 11
mask = 100 & 11
mask = 00
Pos = 0
d = 2
t = 2
sale del bucle

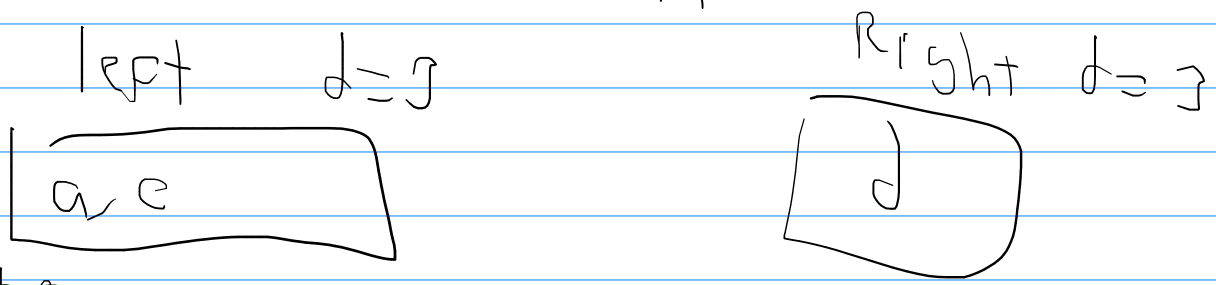


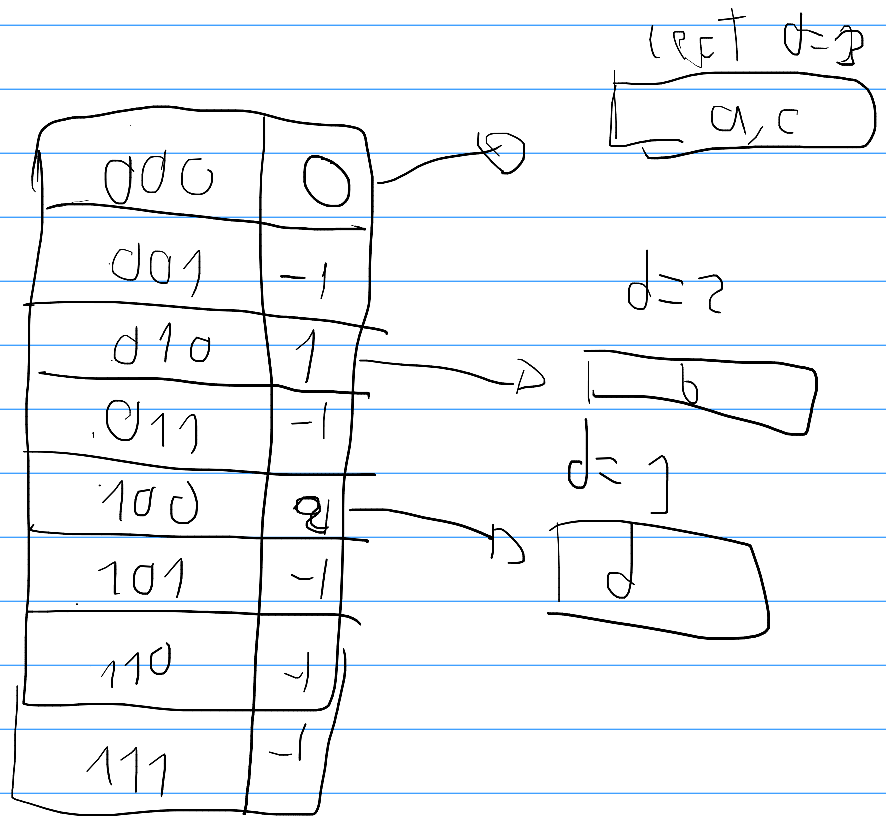
010 | 100 = 110
2

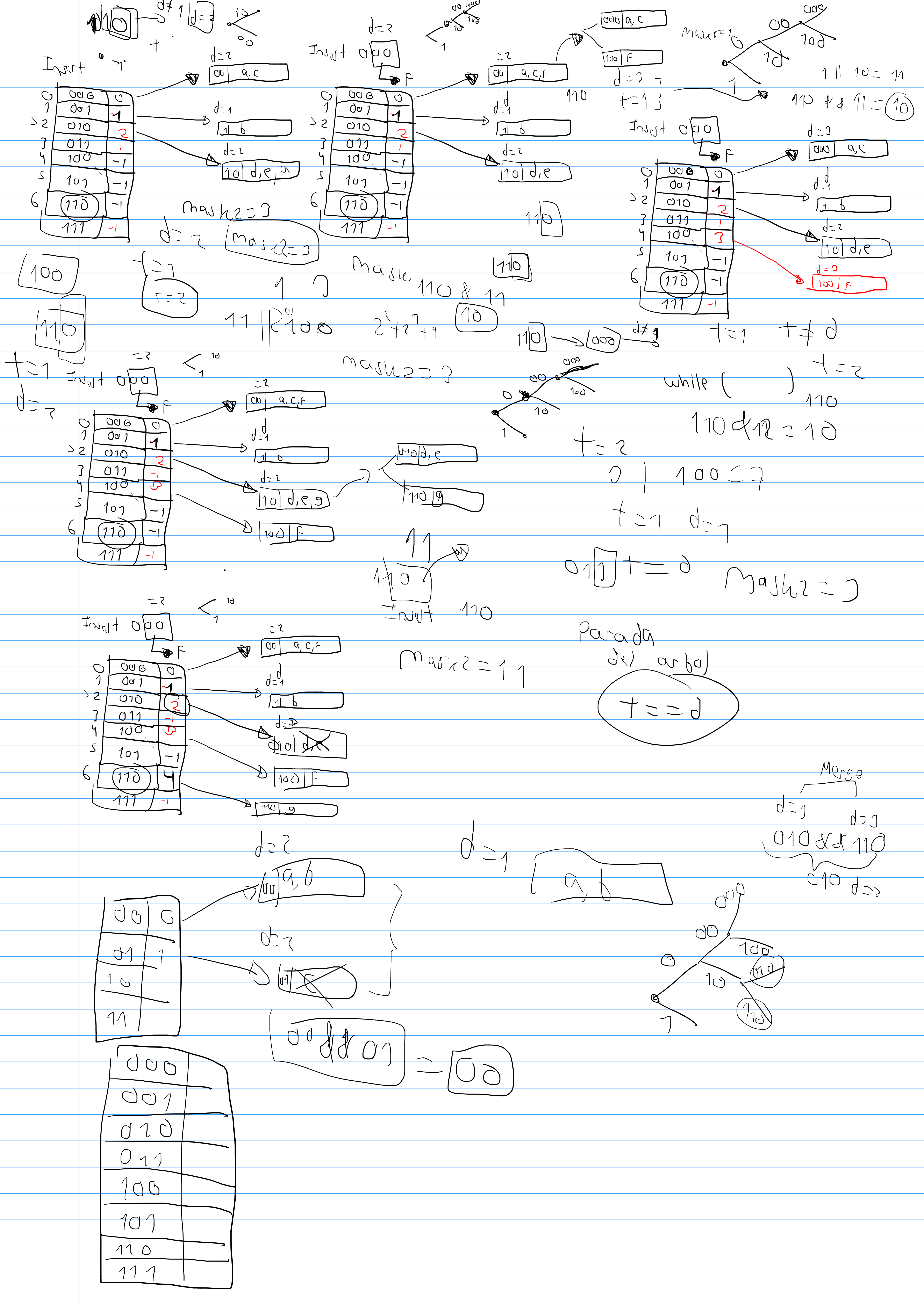
new_index = 010 | 100 = 110



new_index = 00 | 100 = 100
new_mask = 111

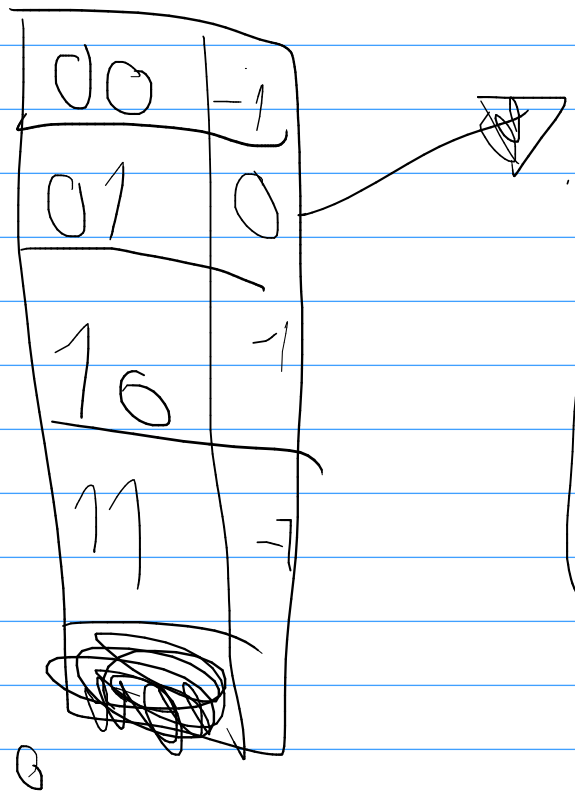




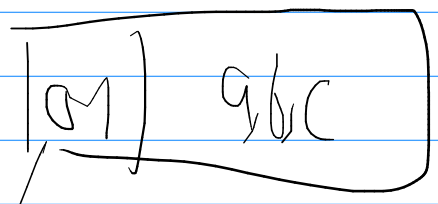


Input 000
d=2
d=1
mask2=3
t=1
t=2
11 || 100
110 & 11
10
110 && 11 = 10
1 || 10 = 11
d ≠ 1
t ≠ d
while ( )
110 && 11 = 10
t = 2
0 | 100 = 7
t=1 d=1
011 t = d
Mask2=3
Input 110
mask2=11
Parada del arbol
t == d
Merge
010 && 110
010 d=2
00 && 01 = 00

101



d=2



a -> 1 -> 001
b -> 5 -> 101
c -> 1 -> 001

101 001

01

split

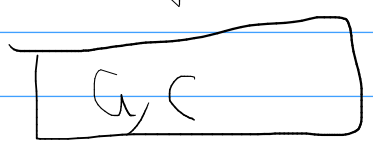
bucket

index = 001

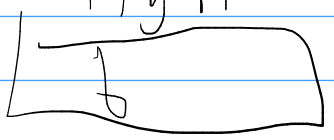
t = 2

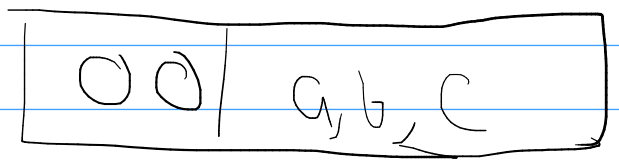
pos = 0

left

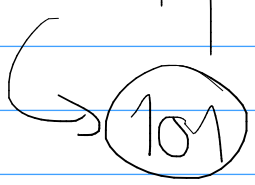


right





new_index = 01 | 100



new_mask = $2^{t+1} - 1$

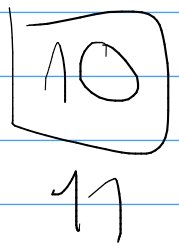
= 7 = 111

a -> 000
b -> 100
c ->

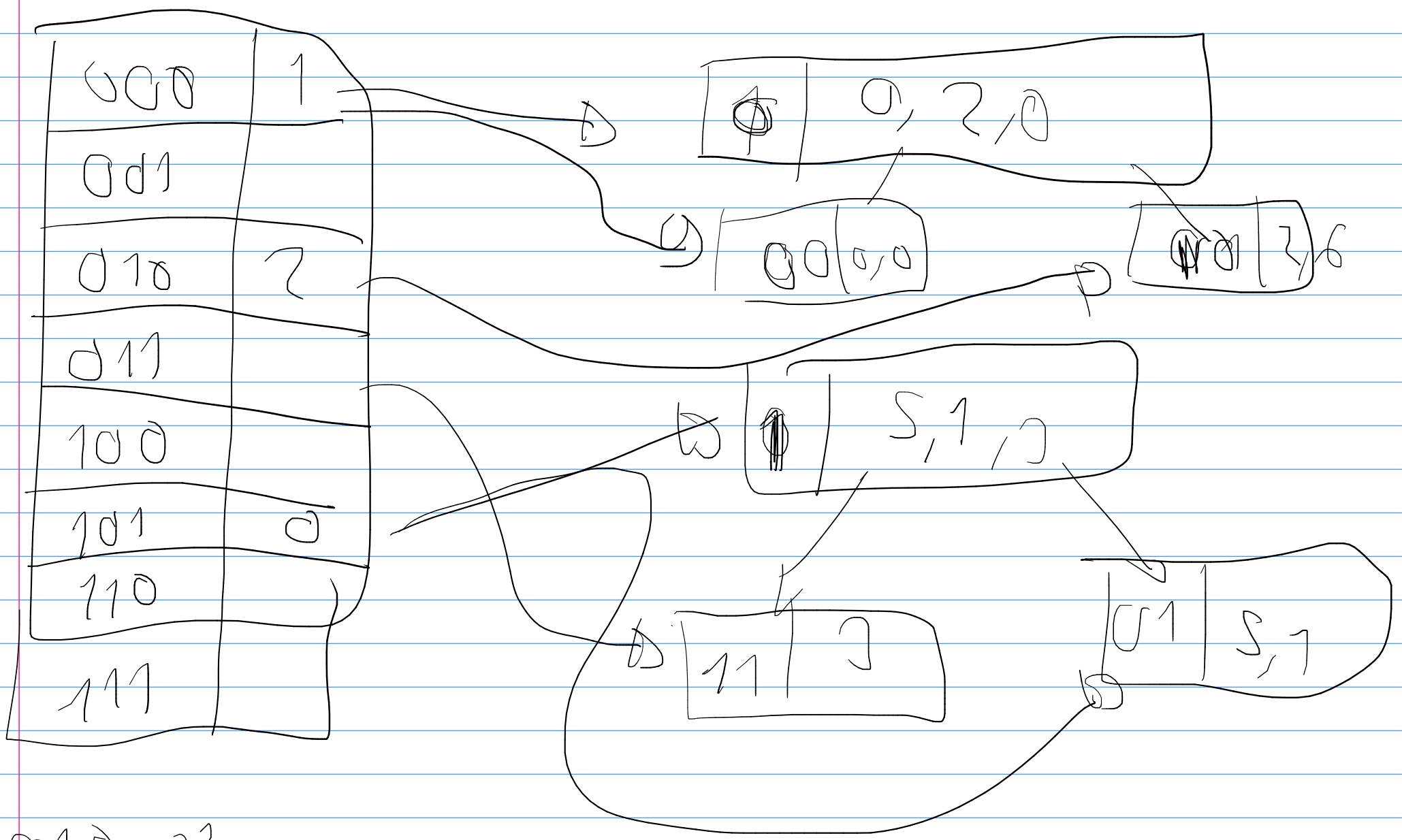
000 = 0
010 = 2
110 = 6

100 -> 4
110 -> 6
100 ->

100 -> 4
000 -> 0
010 -> 2



11

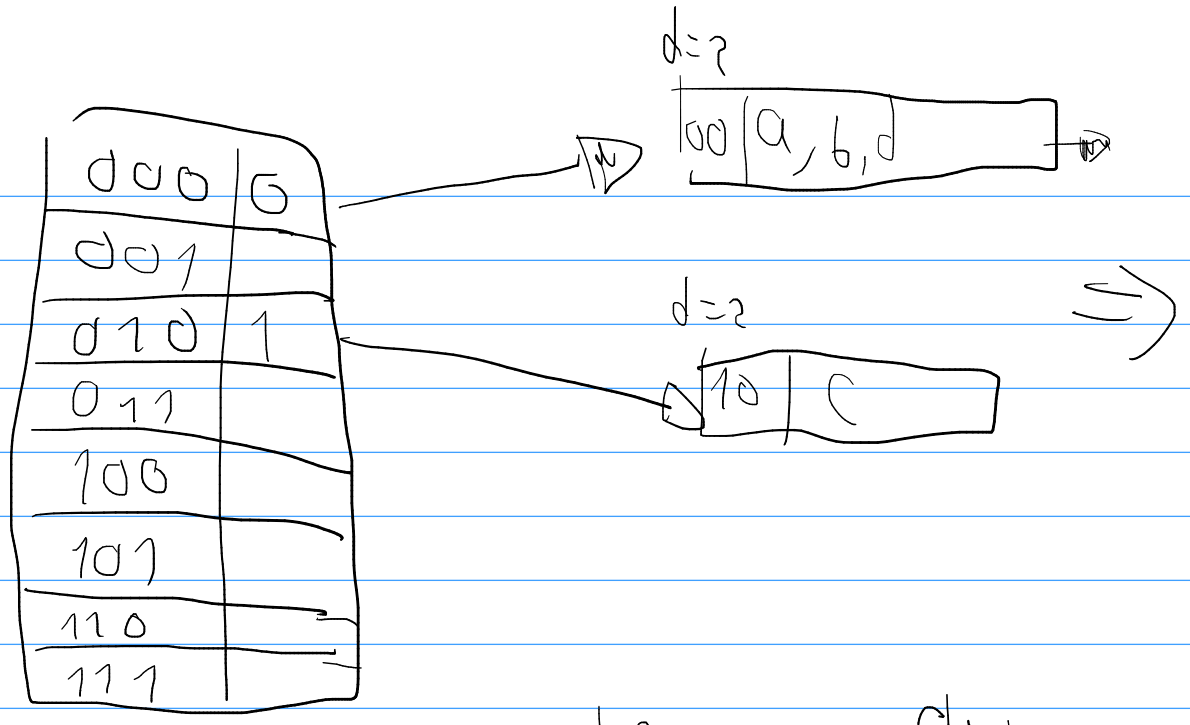


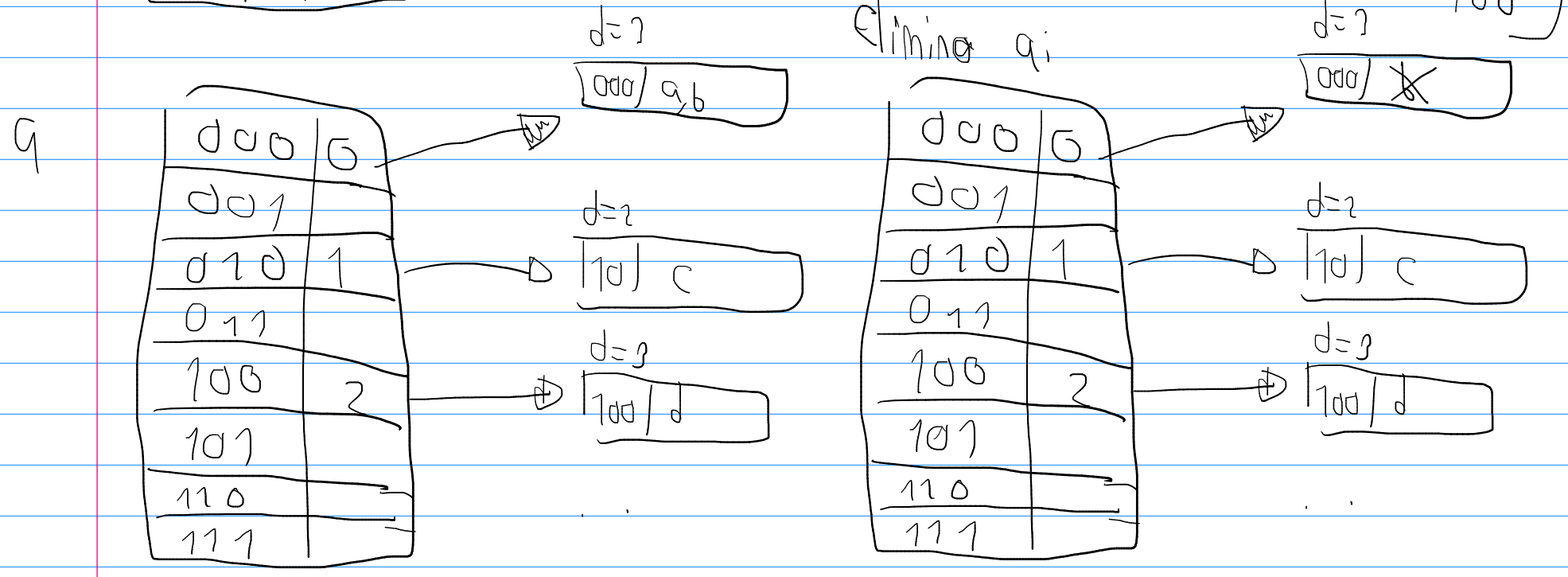
010 -> 2

101 1

001

110


d=?
000 | a, b, d
d=2
10 | c
000 | c
001
010 | 1
011
100
101
110
111


a
000 | c
001
010 | 1
011
100 | 2
101
110
111
d=2
000 | a, b
d=2
101 | c
d=3
100 | d
Elimino a;
000 | c
001
010 | 1
011
100 | 2
101
110
111
d=2
000 | ✗
d=2
101 | c
d=3
100 | d
100