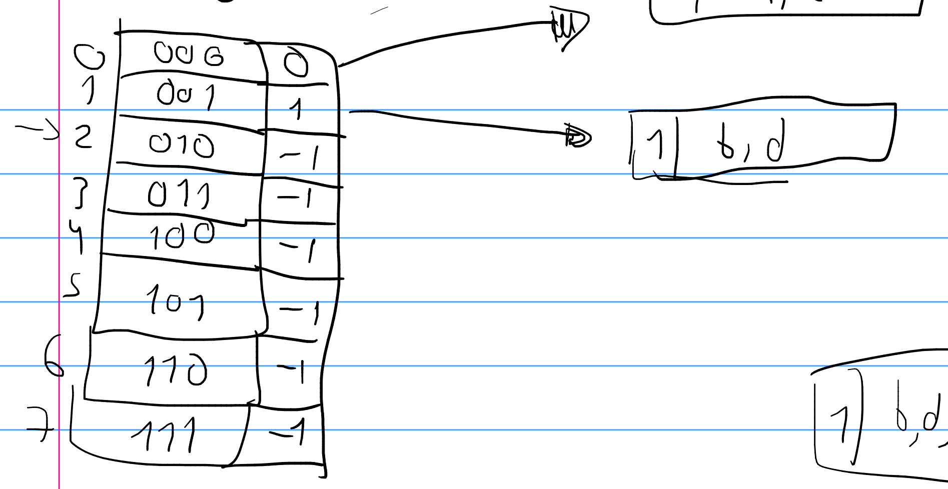
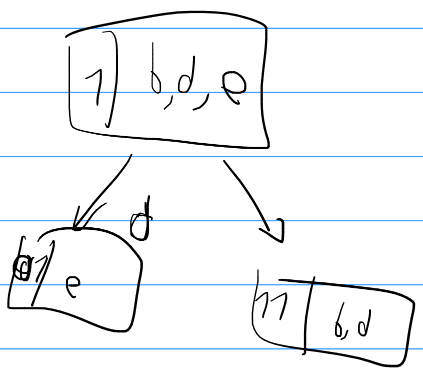
D = 3

Factor = 2

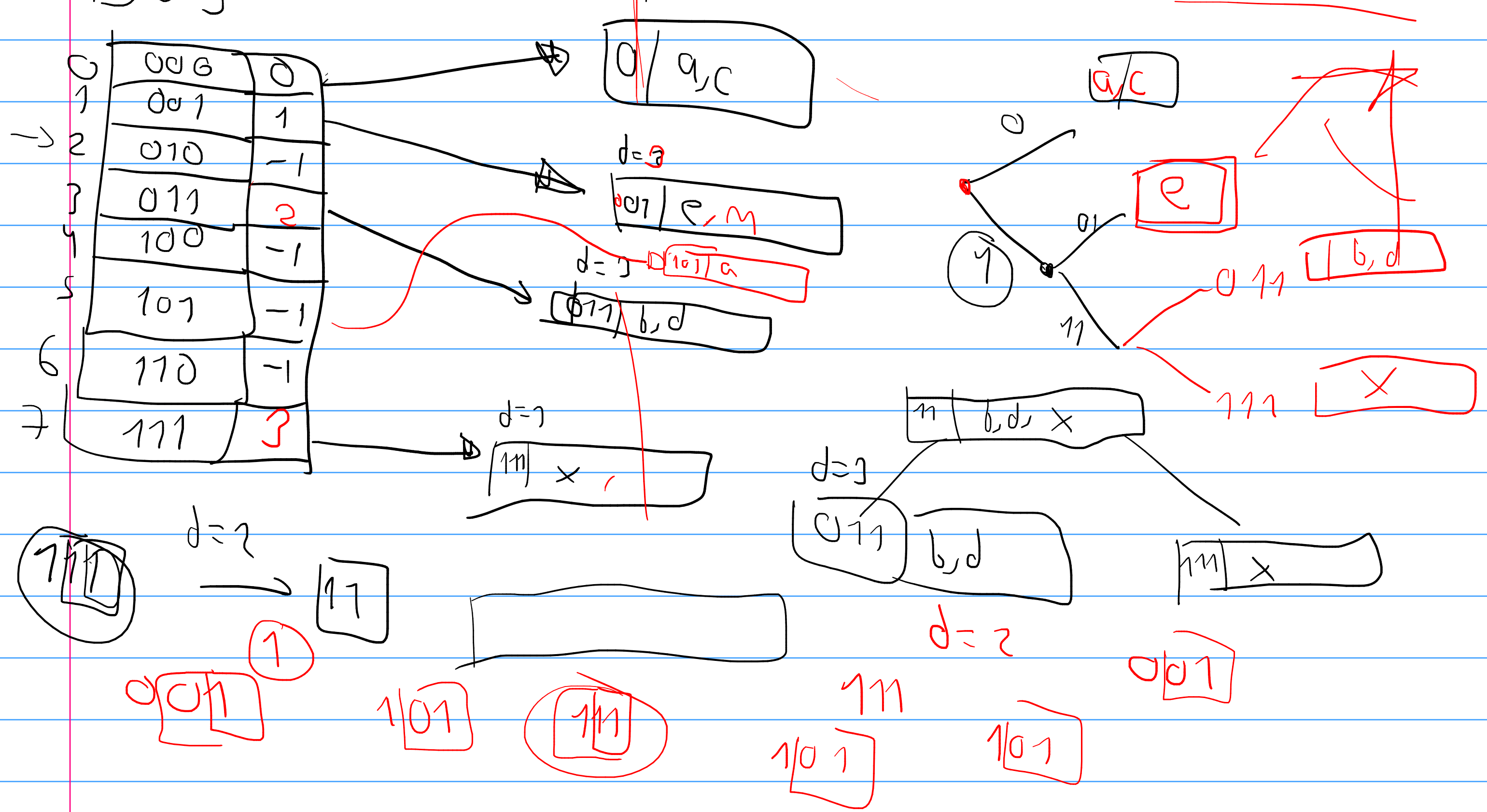




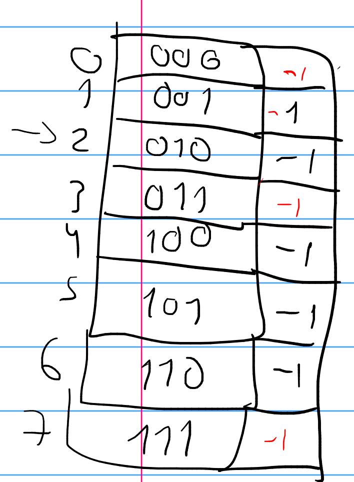
010 → a   000 → c

011 → b   111 → d   101 → e

D = 3



insert 010



if (a == -1)

↳ 010 && 1 = 0

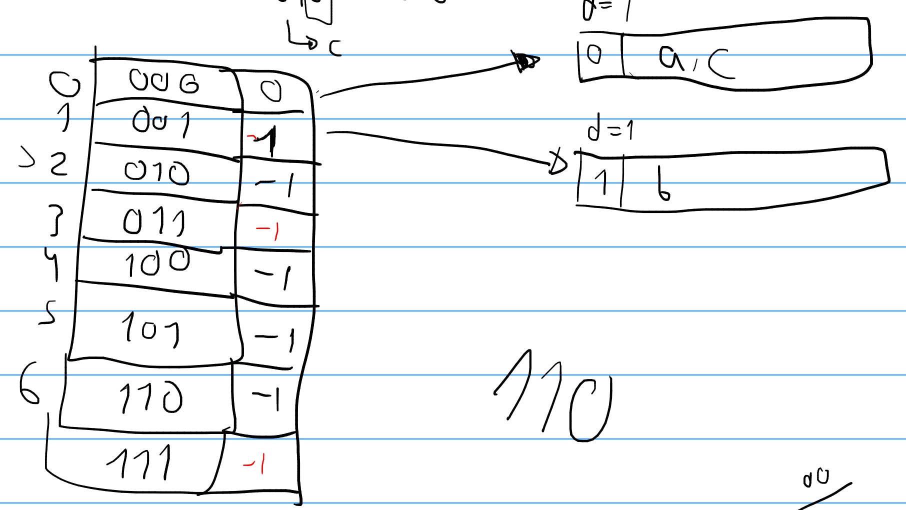
→ 0 [000 | -1]

if (== -1)

Create bucket

Insert 010 → 0

↳ c



110

40 % 8

010 → a

d=1

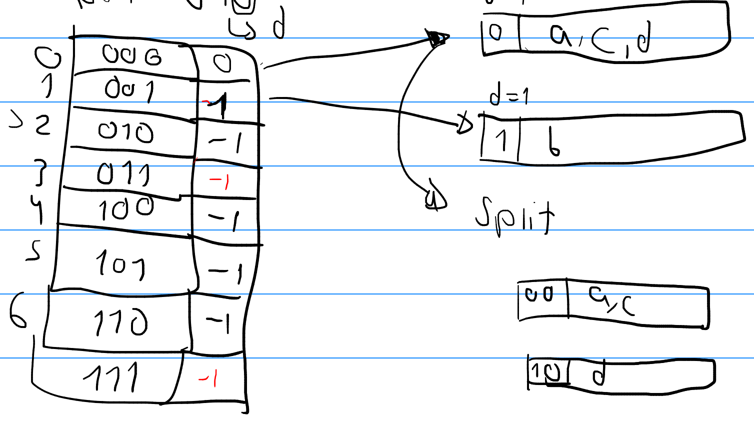
010

010

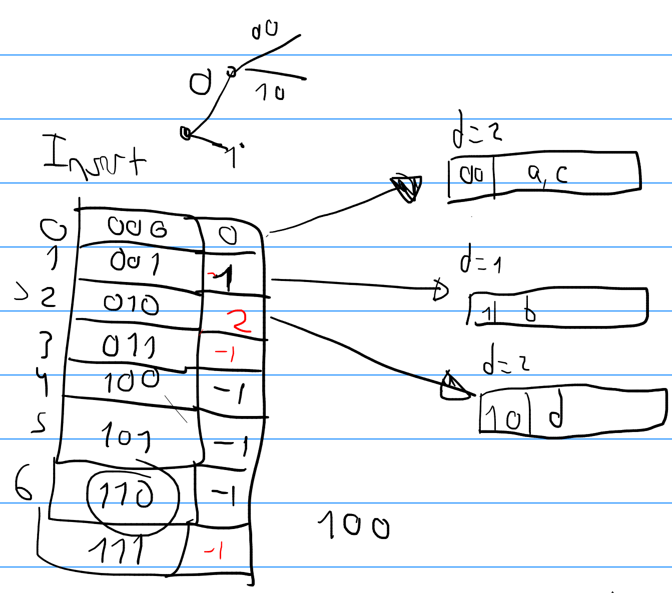
mask2 = 1

Insert 010 →

↳ d



⇒



100

Insert 110 → 0 d=2 ⇒ 10 → Insertar

↳ e

000

110

10

d = 2

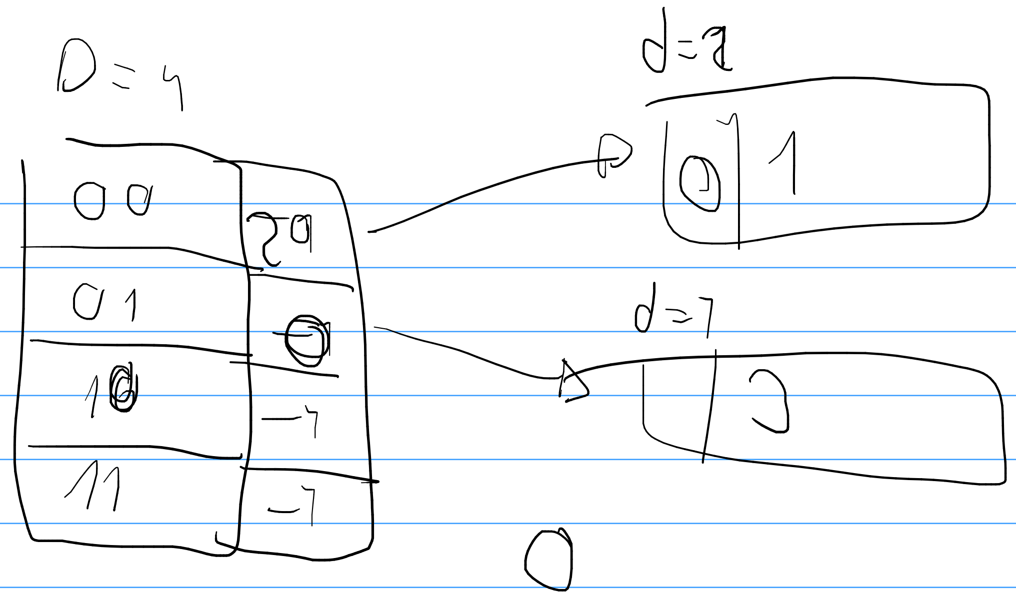
mask2 = 11

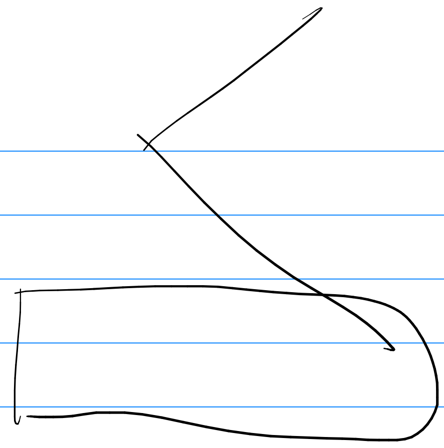
t = 2

mask2 = 11

t = 1

110 && 11 = 10





2

0

10

0 10

for.(buckets)

a b c
00 10 10

a, b, c

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

t = 2

11

bucket

00

10

Mask = 0

t = 1

10 → 0

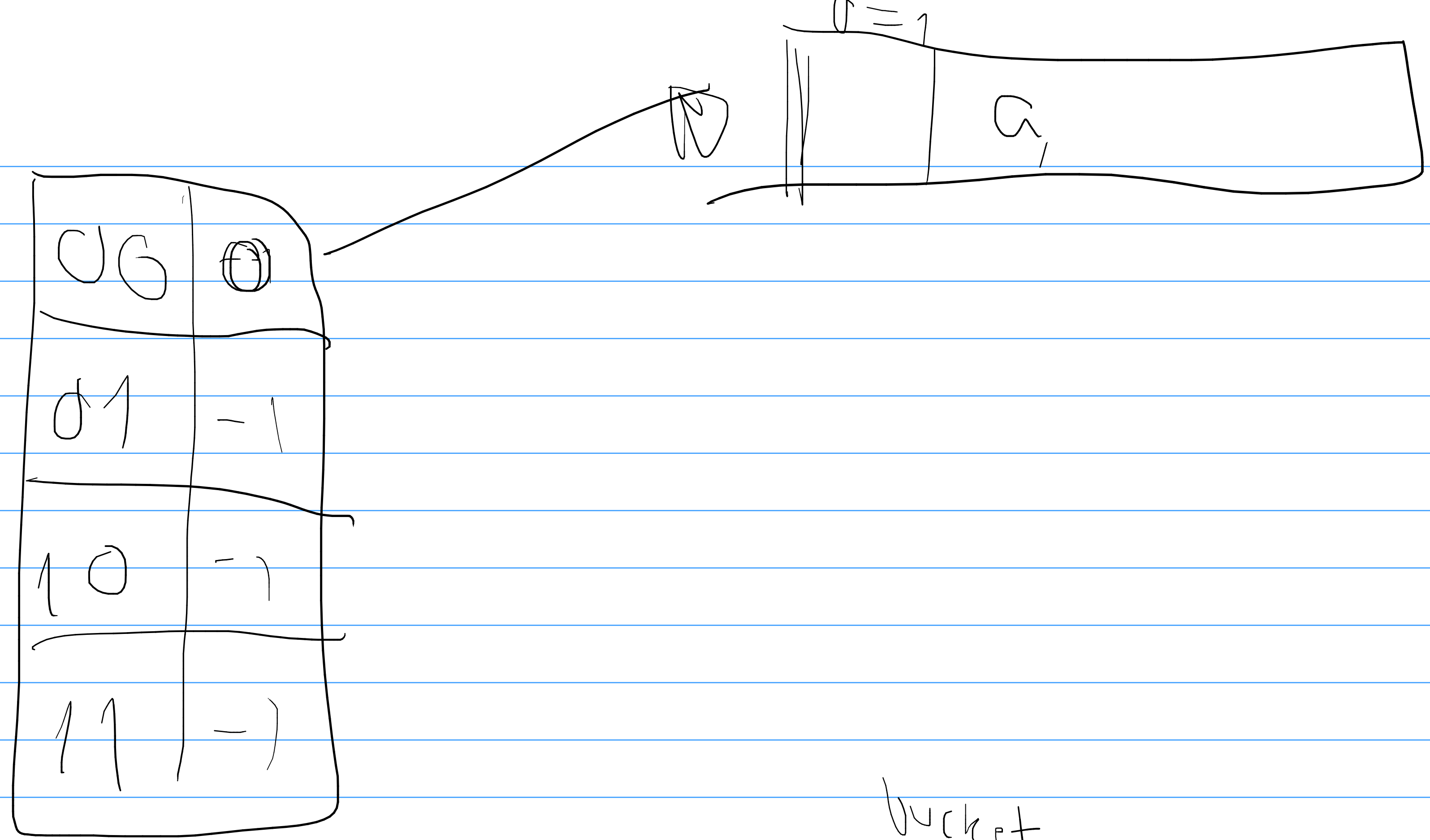
d = 1
t = 1

00

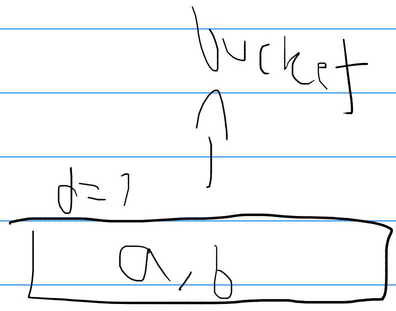
10

00

mask



Alurimos



00 -> a -> 0

10 -> b -> 0

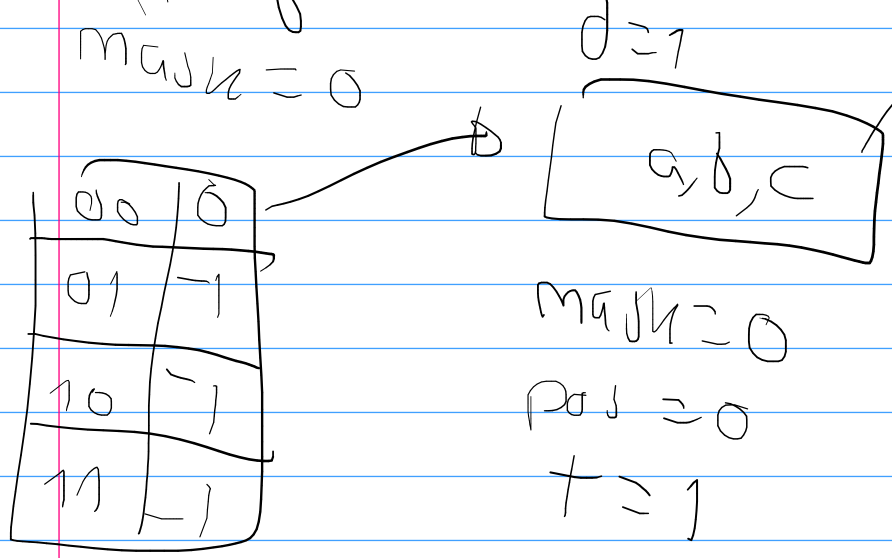
int pos = mask = 0

t = 1

key = b

index = b

mask = 0



lleno

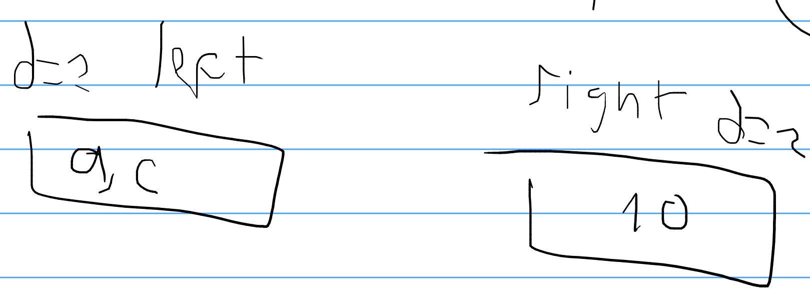
- new_index = 0 | 10 = 10
- new_mask = 1 | 10 = 11

mask = 0

pos = 0

t = 1

mask2 = 1



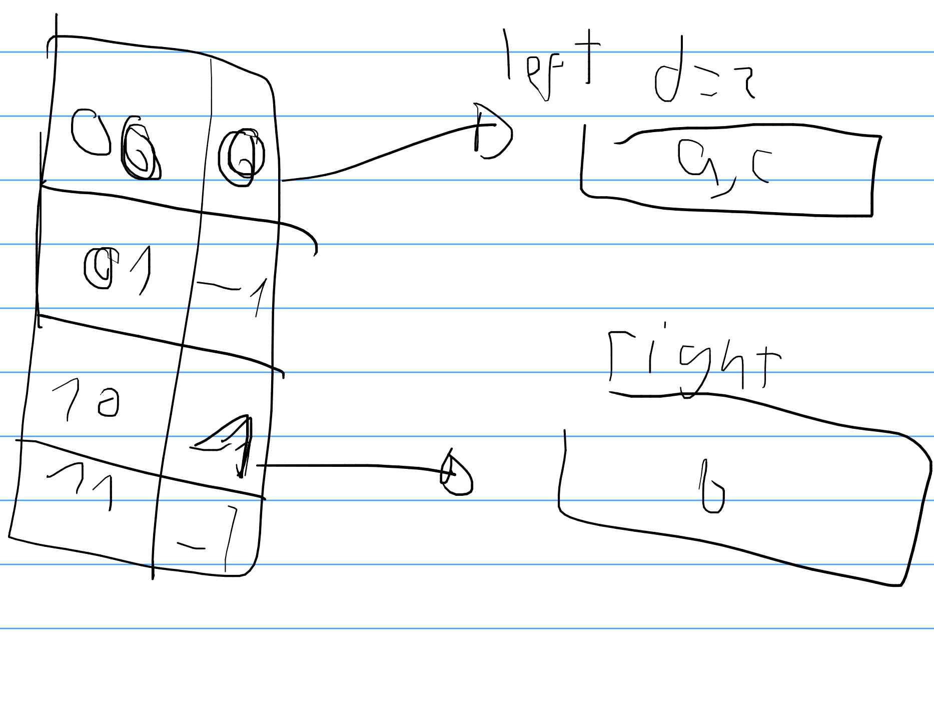
value

a -> 00 -> 00

b -> 10 -> 10

c -> 00 -> 00

=>



d=1

1 | 10 -> 11

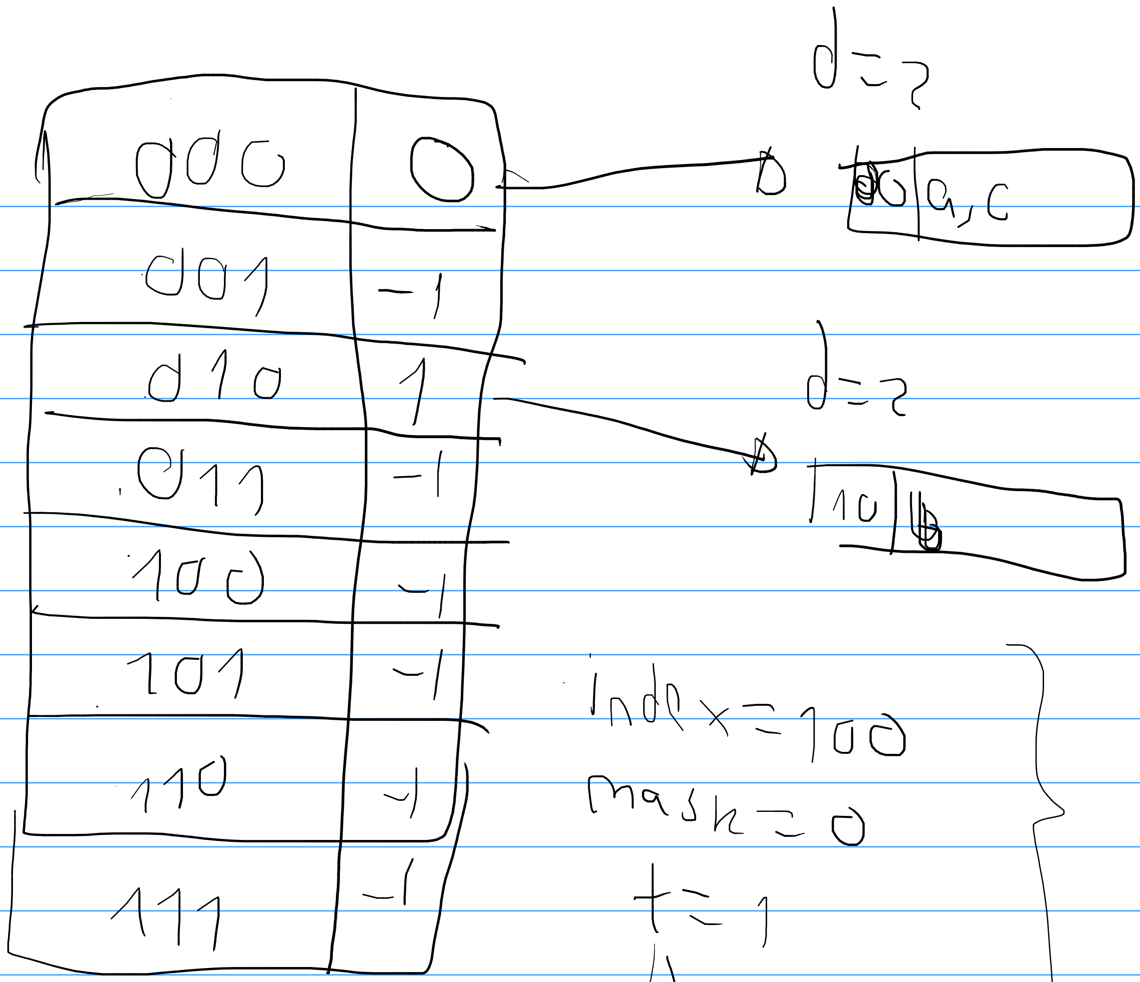
d=2

000

d = ?

"d"

Insut 100



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

d
↓
000

a = 110
b = 010
c = 010

00 | a, b, c

010 →

d = 2

010
010

010 | 100 = 110

2

new_index = 010 | 100 = 110

a, c, d

split

new_index = 00 | 100 = 100

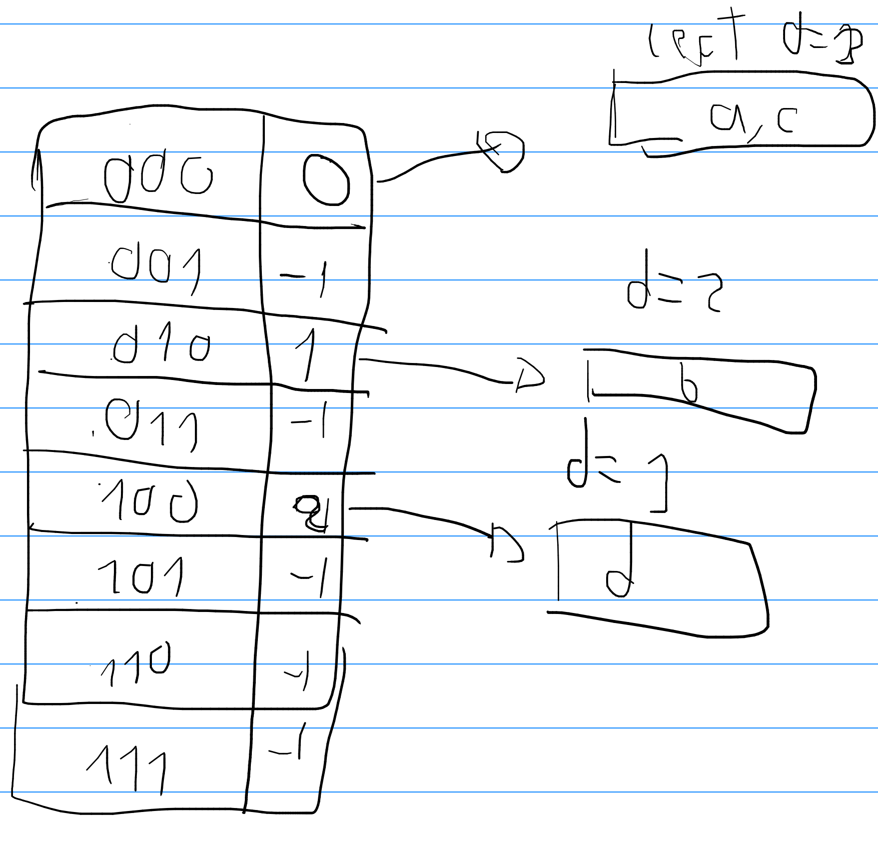
new_mask = 111

left d = 3

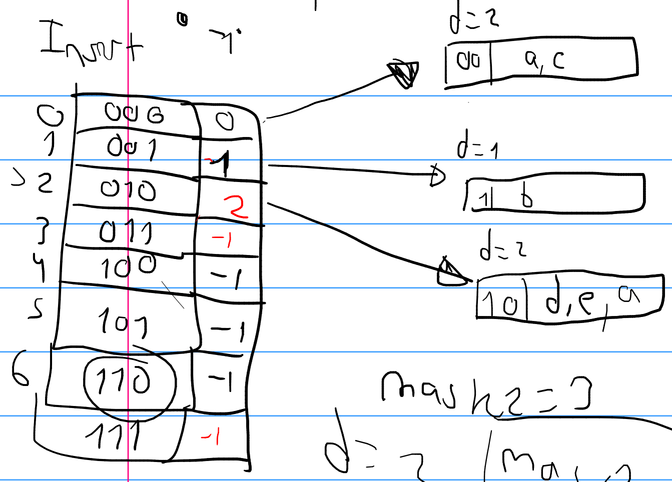
a, c

Right d = 3

d



110 → d ≠ 1 d = 2



mask2=3

d = 2 mask2=3

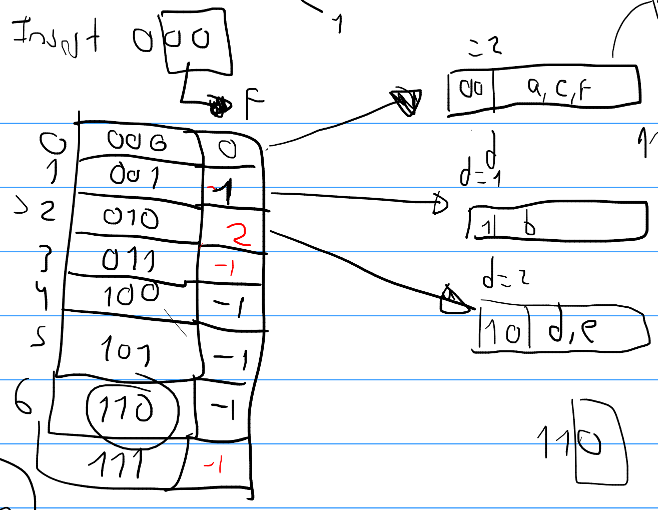
100

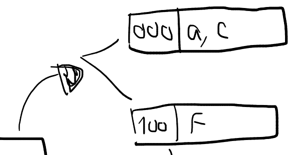
110

t=1

t=2

11 || 100





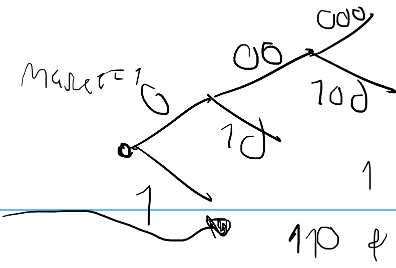
110

110

Mask 110 & 11

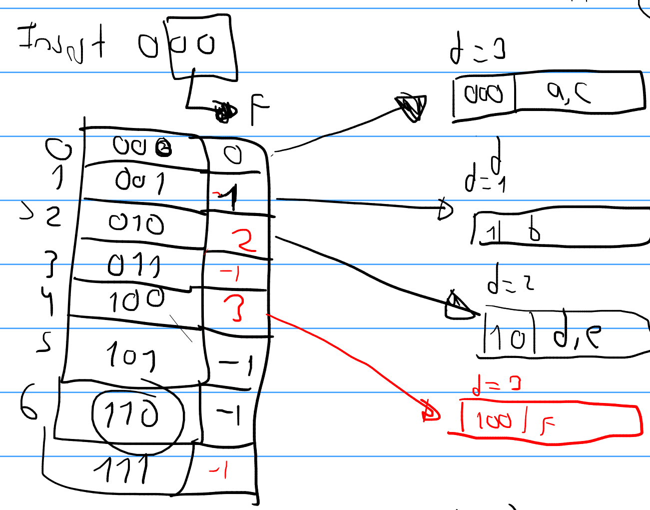
10

2^2+2^1+1



1 || 10 = 11

110 && 11 = 10



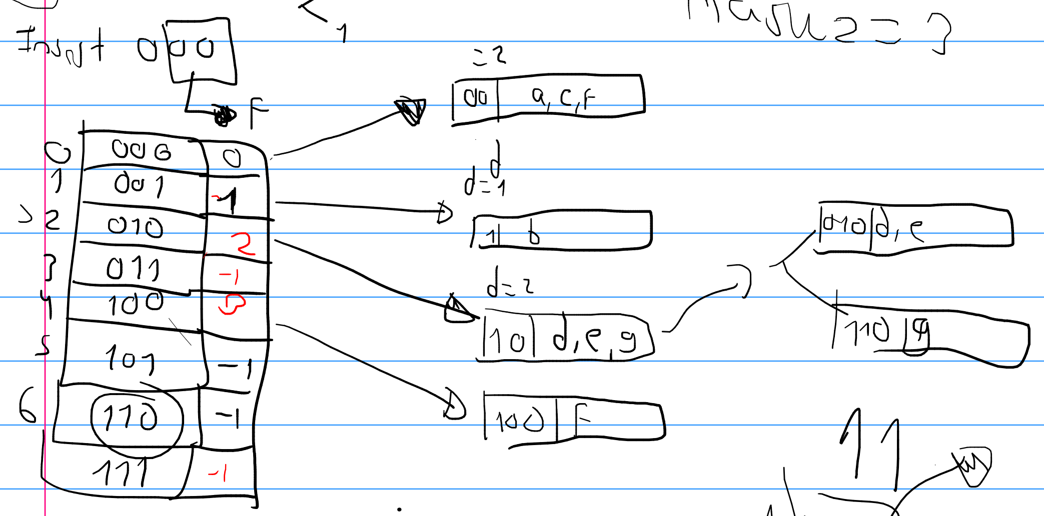
110 → 000 → d ≠ 1

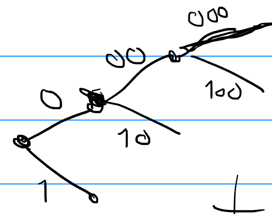
t=1 t ≠ d

t=1

d=2

mask2=3





while ( ) t=2

110

110 && 11 = 10

t=2

1 | 100 = 7

t=1 d=1

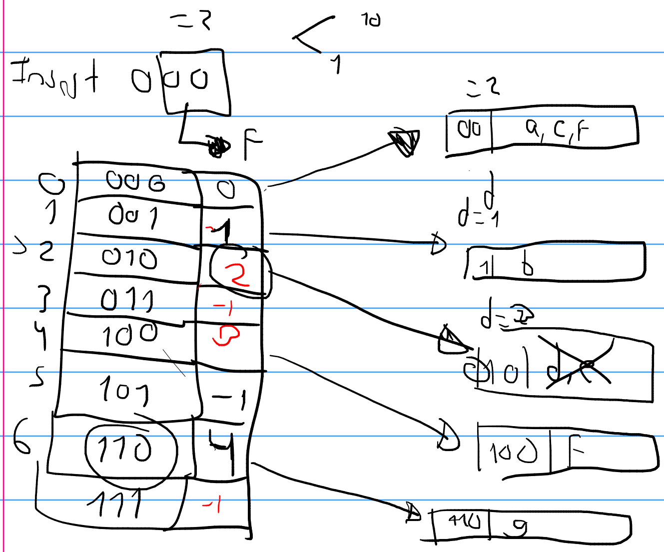
011 t == d

Masks2=3

11

110

Insert 110



mask2=11

Parada del arbol

t == d

Merge

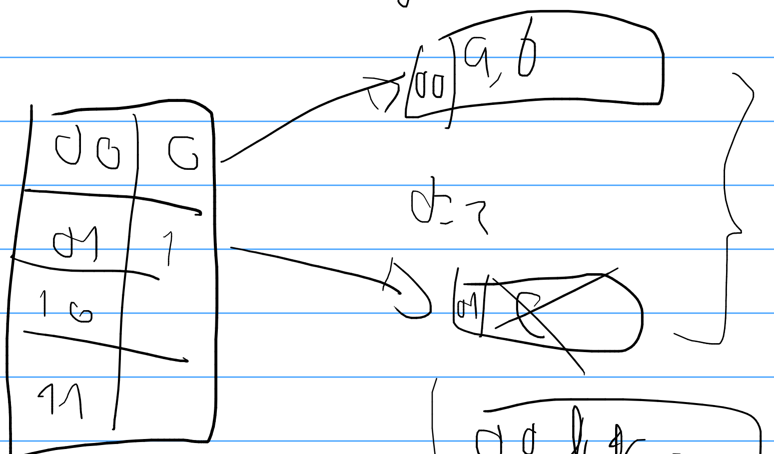
d=1

d=1

010 && 110

010 d=2

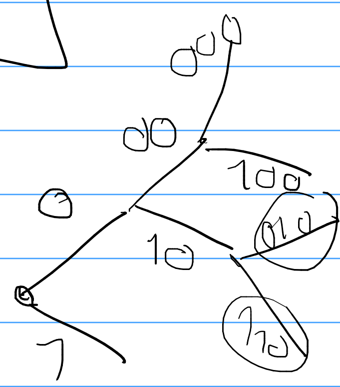
d=2

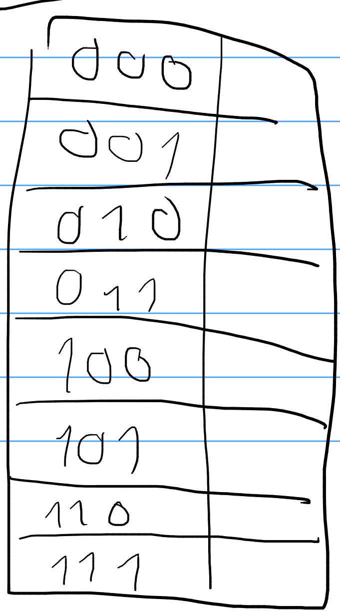


00 && 01 = 00

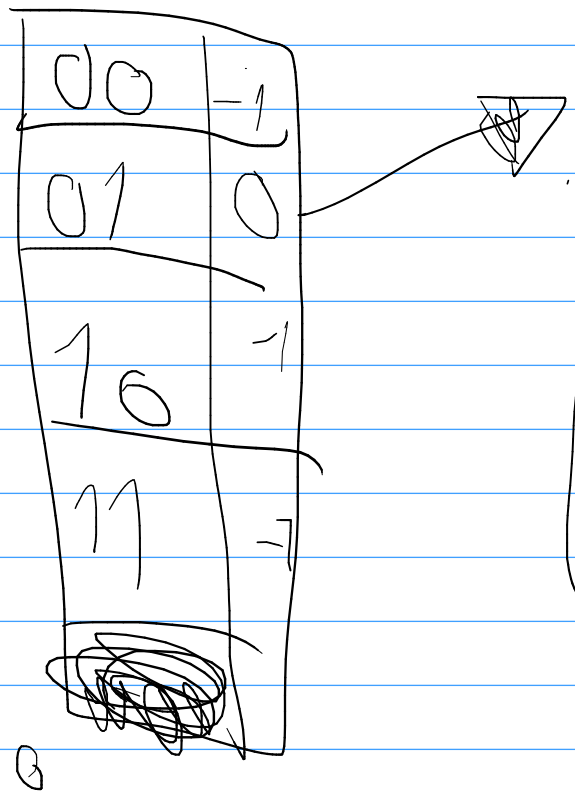
d=1

a, b

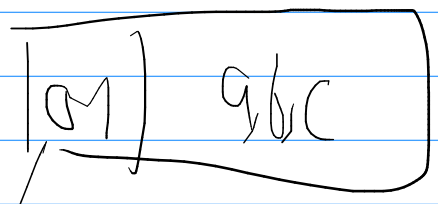




101



d=2



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

101 001

01

split

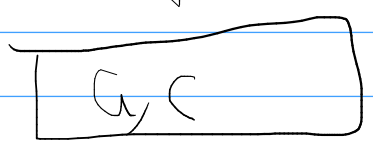
bucket

index = 001

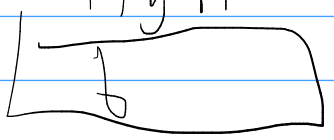
t = 2

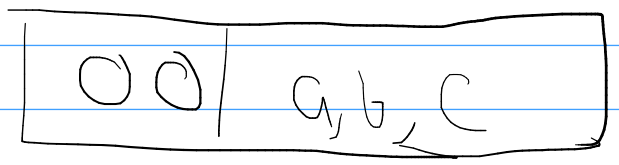
pos = 0

left

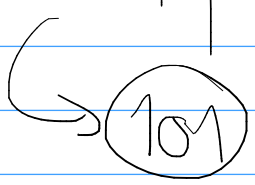


right





new_index = 01 | 100



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

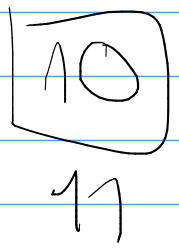
= 7 = 111

a -> 000
b -> 100
c ->

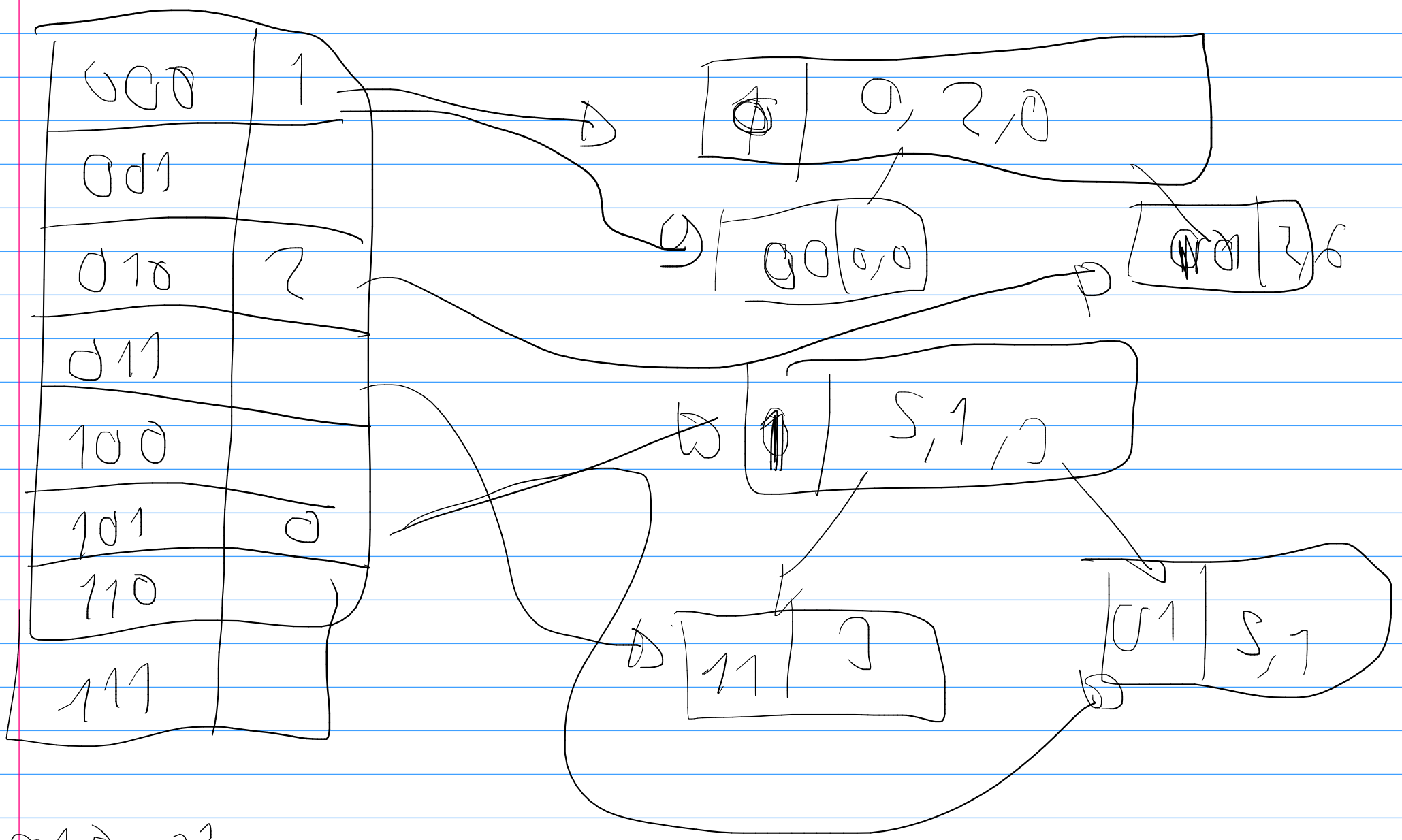
000 = 0
010 = 2
110 = 6

100 -> 4
110 -> 6
100 ->

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



11

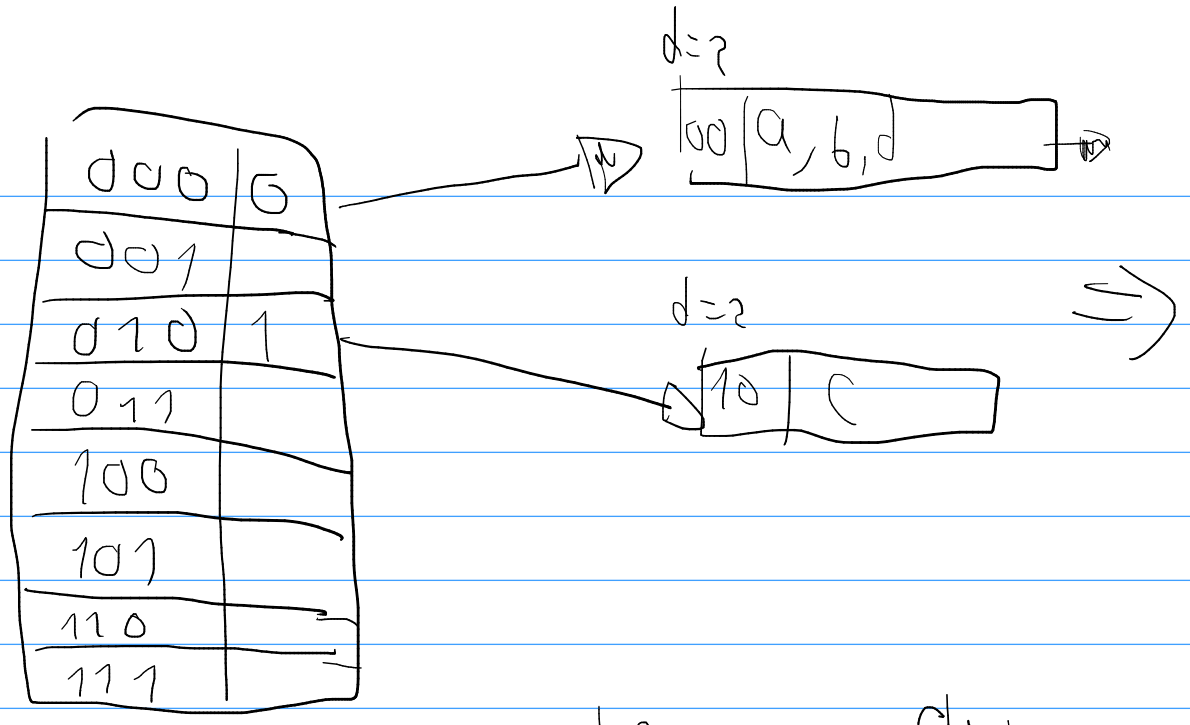


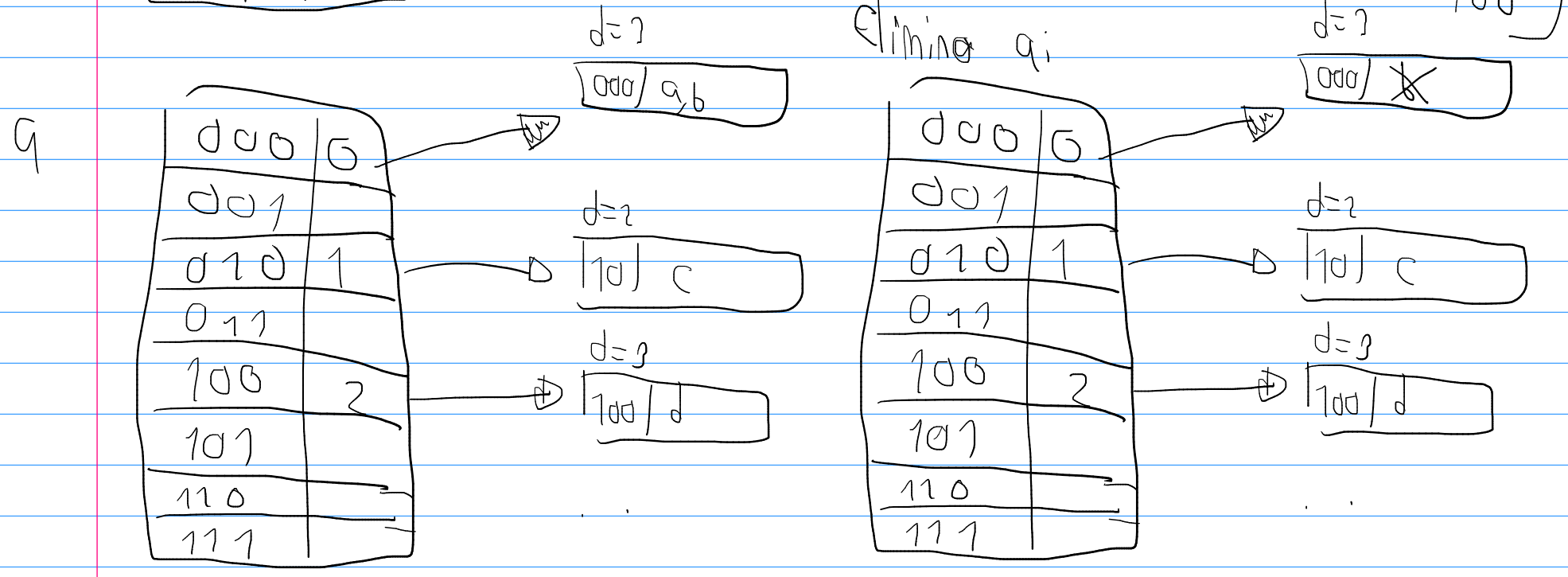
010 -> 2

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