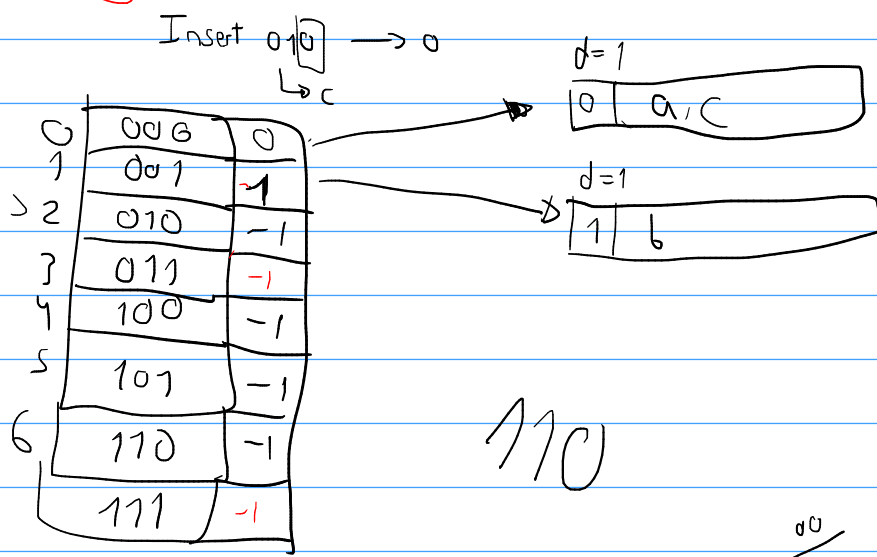
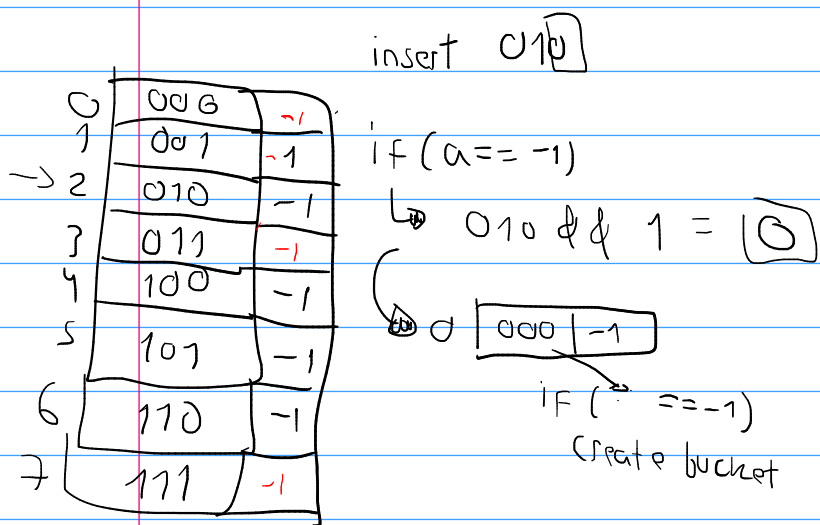
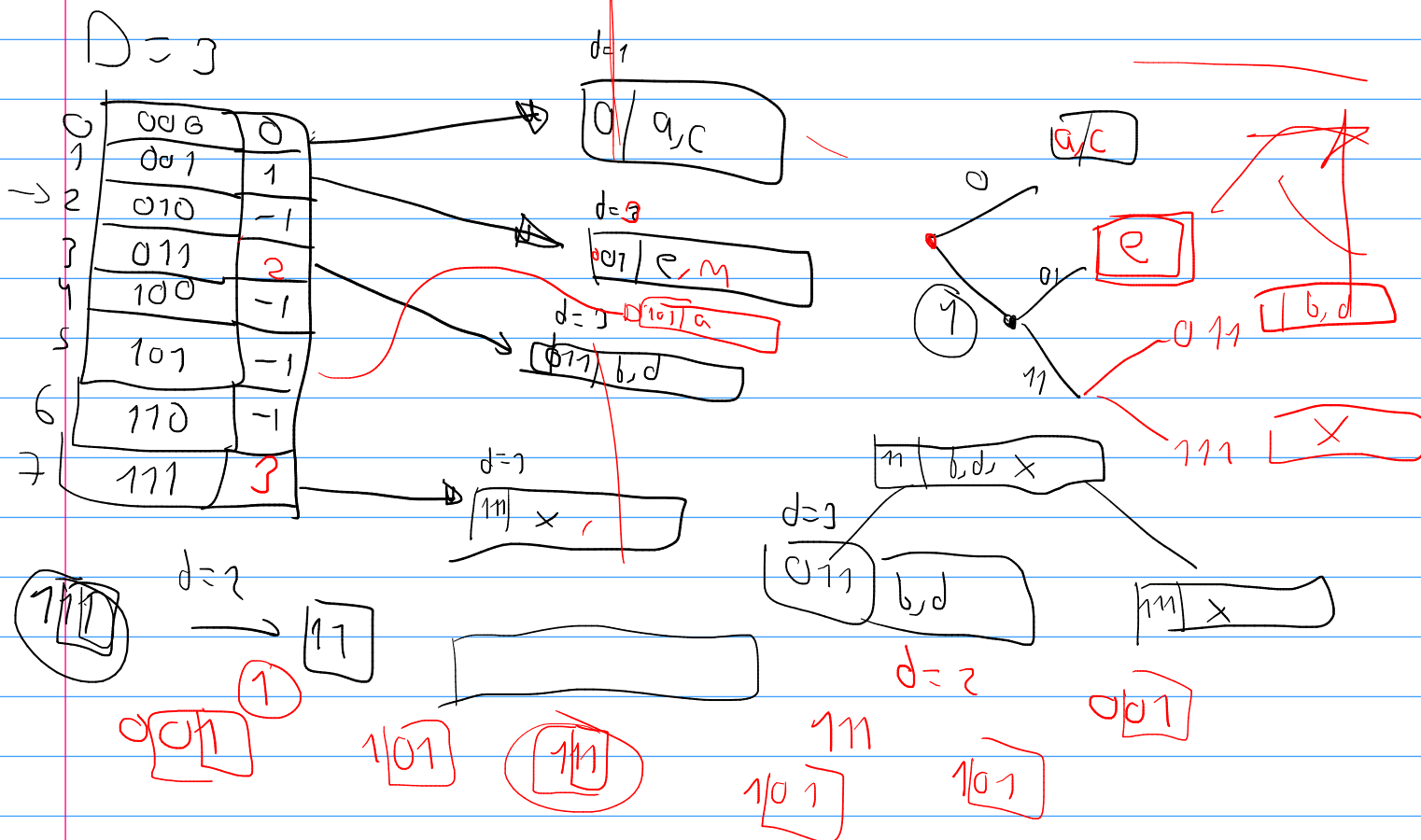


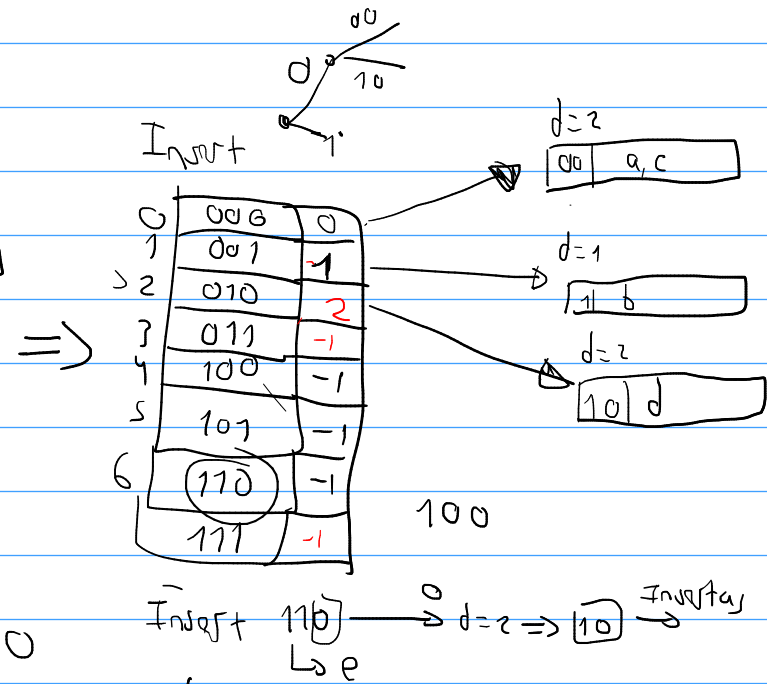
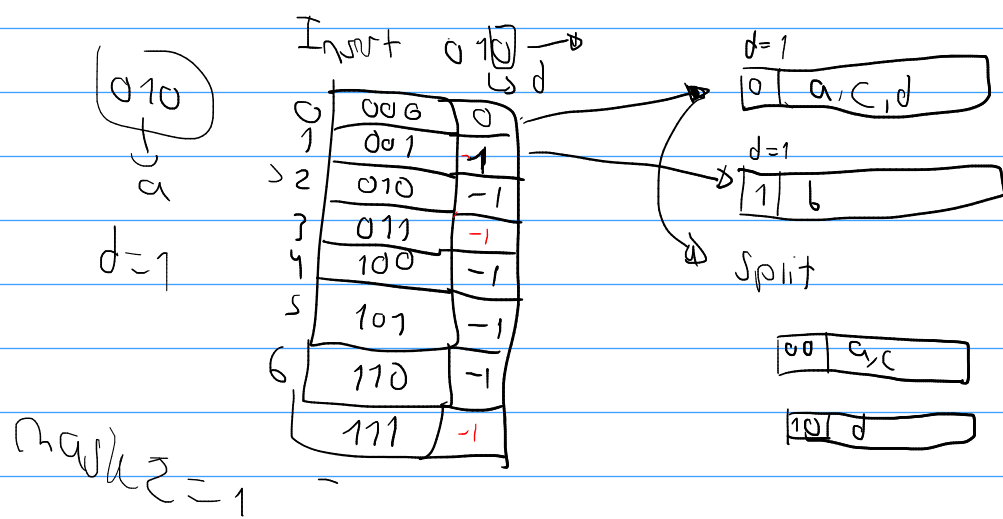
010 → a 000 → x
 011 → b 111 → d 101 → e



40% 8

010

010



10

mask 2 = 11

mask 2 = 11

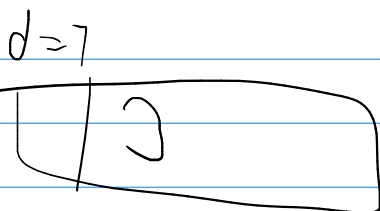
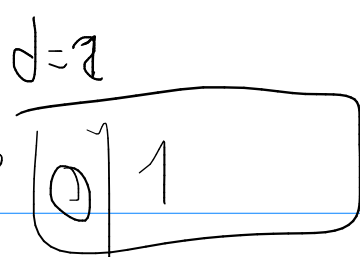
110 & 11 = 10

2

$D=4$

00	29
01	0
10	-7
11	-7

0



10

0 10

For (Buckets)

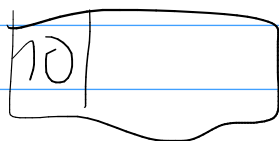
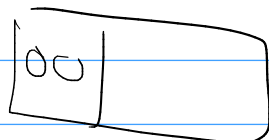
a b c
00 10 10

a, b, c

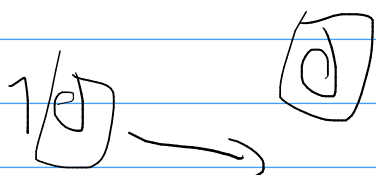
Split (bucket, ^{mark}~~index~~, t)

t=2
11

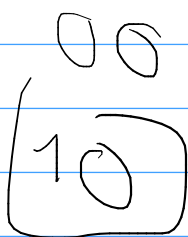
bucket



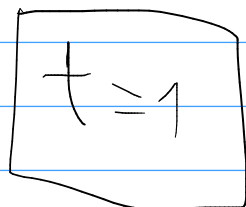
mark = 0



d=1
t=1

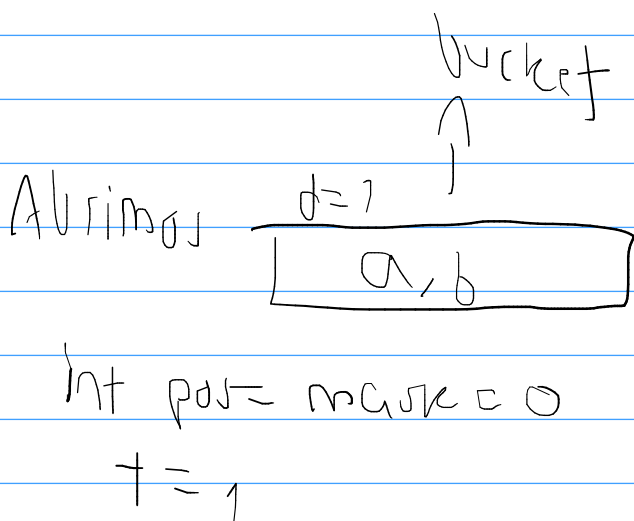
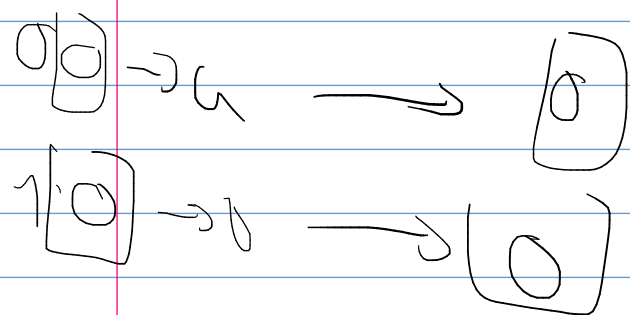
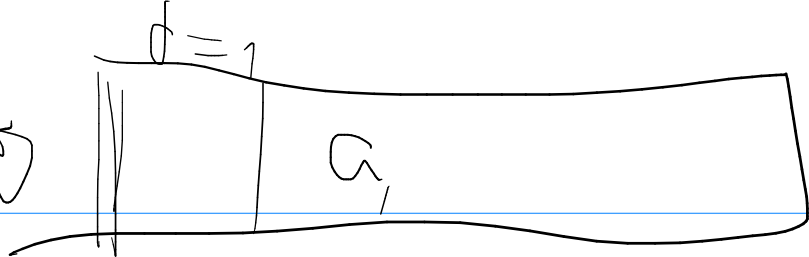


00



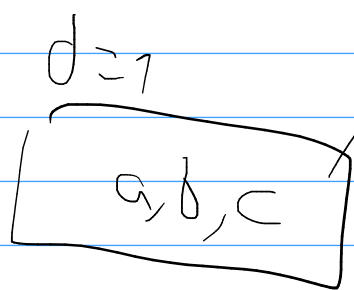
mark

00	0
01	-1
10	-1
11	-1



key = b
Index = b
mark = 0

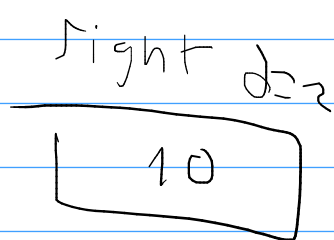
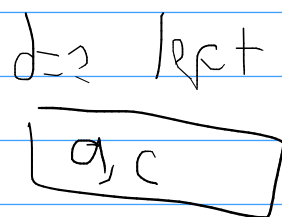
00	0
01	-1
10	-1
11	-1



mark = 0
pos = 0
t = 1
mark2 = 1

len = 0
new_index = 0 | 10
= 10

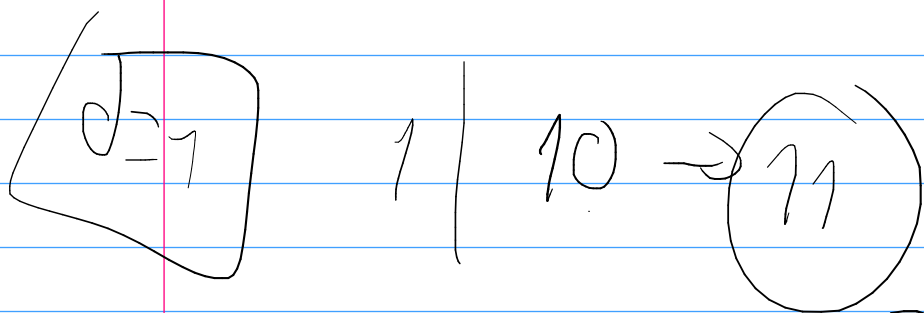
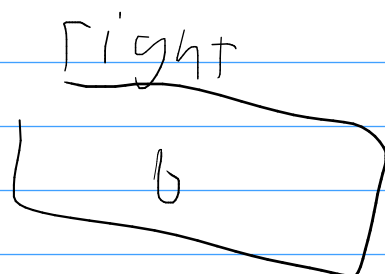
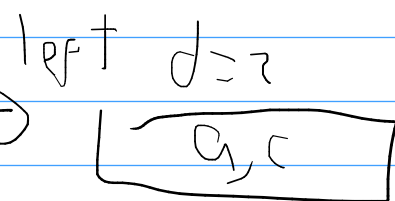
New_mask = 1 | 10 = 11



value
a → 00 → 00
b → 10 → 10
c → 00 → 00

⇒

00	0
01	-1
10	-1
11	-1



000

d = 2

000	0
001	-1
010	1
011	-1
100	-1
101	-1
110	-1
111	-1

$d=2$

a, c

Insert 100

d^c

$d=2$

10

index = 100

mask = 0

$t=1$

$d=2$

pos = 0

mask = 1

while ()

1st Iteration

mask = 11

mask = 100 & 11

mask = 00

pos = 0

$d=2$

$t=2$

scale del bump

a, c, d

Split

new_index = 00 | 100 = 100

new_mask = 111

left $d=3$

a, c

Right $d=3$

d

left $d=3$

a, c

$d=2$

b

$d=3$

d

000	0
001	-1
010	1
011	-1
100	2
101	-1
110	-1
111	-1

d
000
 $a=110$
 $b=010$
 $c=010$

a, b, c

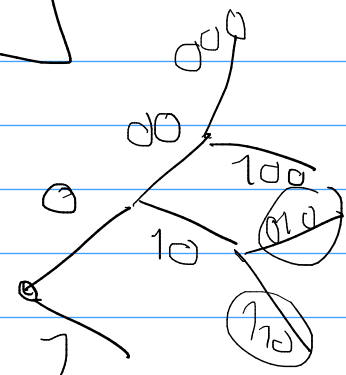
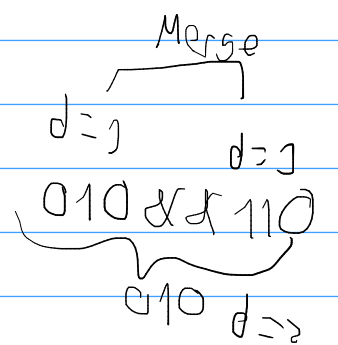
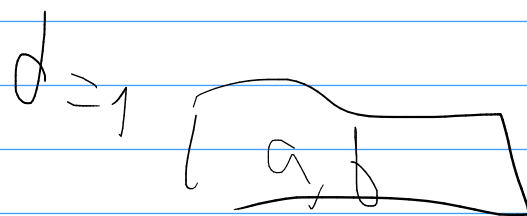
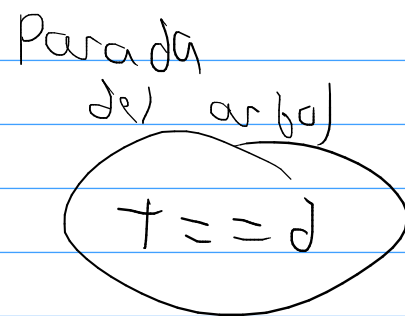
010 →

$d=2$

010
010

010 / 100 = 110
2

new_index = 010 / 100 = 110



000	
001	
010	
011	
100	
101	
110	
111	

101

$d=2$

$a \rightarrow 1 \rightarrow 001$

$b \rightarrow 5 \rightarrow 101$

$c \rightarrow 7 \rightarrow 001$

00	-1
01	0
10	-1
11	-1
100	

101 | a, b, c

101

001

01

(011) \rightarrow)

split

bucket

index = 001

$t=2$

pos = 0

new_index = 01 | 100

\rightarrow (101)

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

= 7 = (111)

left

right

10

11

a, c

b

00 | a, b, c

$a \rightarrow 000$

$b \rightarrow 100$

$c \rightarrow$

000 = 0

010 = 2

110 = 4

100 \rightarrow 1

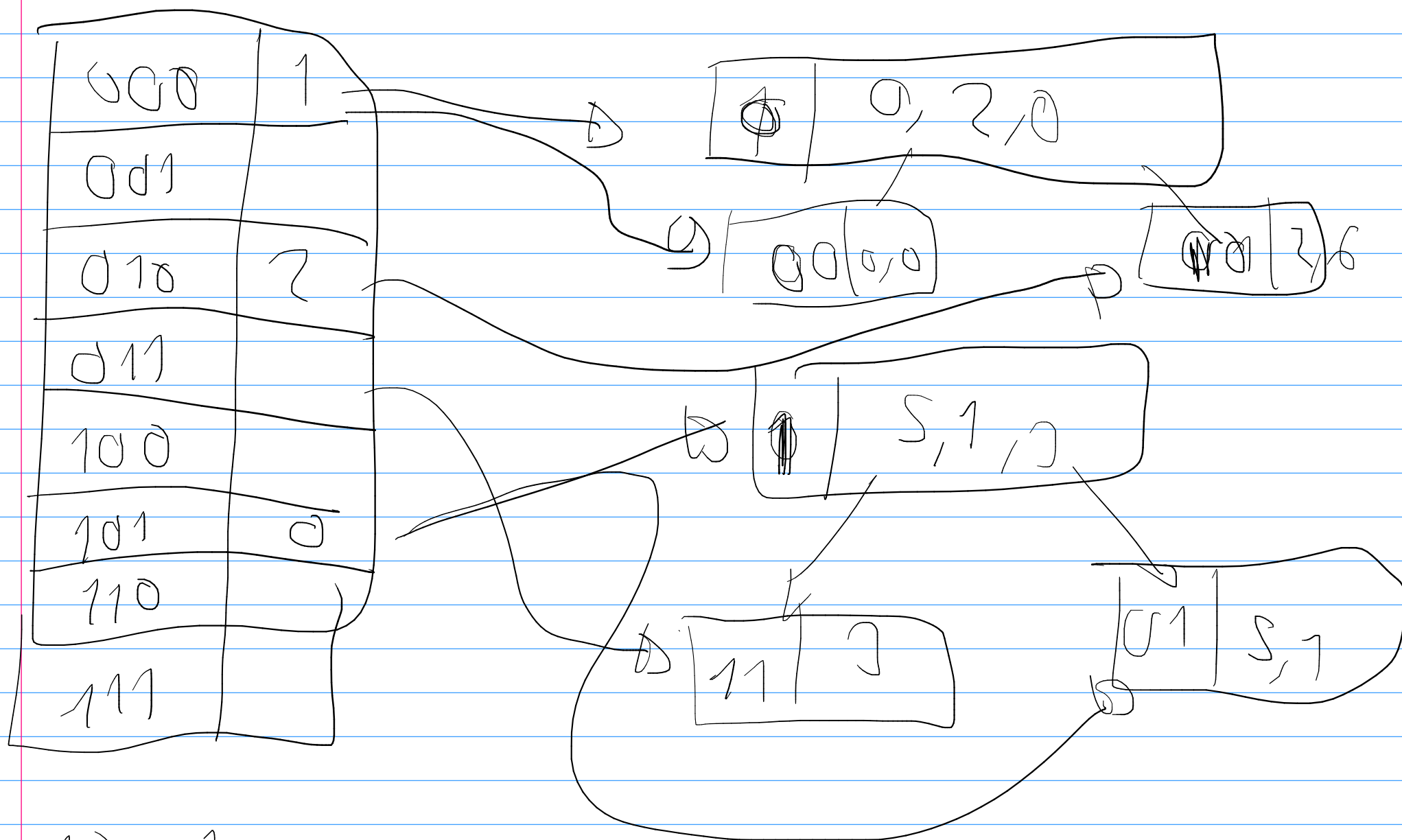
110 \rightarrow 6

100 \rightarrow

100 \rightarrow 4

000 \rightarrow 0

010 \rightarrow 2



010 → 2

101 → 1

001

110

000	5
001	
010	1
011	
100	
101	
110	
111	

$d=2$
 $\boxed{100 | a, b, d}$

$d=2$
 $\boxed{10 | c}$

\Rightarrow

9

000	5
001	
010	1
011	
100	2
101	
110	
111	

$d=2$
 $\boxed{000 | a, b}$

$d=2$
 $\boxed{10 | c}$

$d=3$
 $\boxed{100 | d}$

eliminating q_i

000	5
001	
010	1
011	
100	2
101	
110	
111	

$d=2$
 $\boxed{000 | \cancel{a, b}}$

$d=2$
 $\boxed{10 | c}$

$d=3$
 $\boxed{100 | d}$