4 **0221**

$\{0, 2, 2, 1\}$

$0 \to 0 \oplus 2$
$1 \to$
$2 \to$

for i=L → R-1

L   R

$0 \oplus (2 \oplus (2 \oplus 1))$
$0 \oplus ((2 \oplus 2) \oplus 1)$
$(0 \oplus 2) \oplus (2 \oplus 1)$
$((0 \oplus 2) \oplus 2) \oplus 1$
$(0 \oplus (2 \oplus 2)) \oplus 1$

[2,2] [3,4]
[1,1] [2,4] ← 0   [2][4][0]=1
[1,1] [2,4] → [2,3] [4,4]
                1   [3][4][1]=1
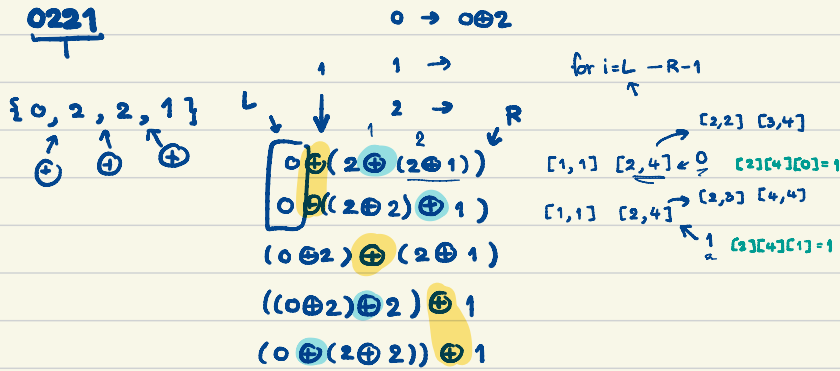
L   R   0,1,2
A[25][25][3]   0: table
                      1 = ...
4 → 0 → A[0][0][0]=1
2 → A[1][1][2]=1
2 → A[2][2][2]=1
1 → A[3][3][1]=1

main

```
int n, A[25][25]
scanf(    , n)
for i=1→n
{ scanf("%1d", &buff)
  A[i][i][buff]=1 }
mystery(A, 1, n)
```

4 0221
n=4

```
mystery(int A[][][], int L, int R)
  if L==R
    return;
  for (i=L; i<R; i++)
    mystery(A, L, i)
    ~~~~ (A, i+1, R)
    if (A[L][i][0]==1)
      if (A[i+1][R][0]==1)

      if (A[i+1][R][1]==1)

      if (A[i+1][R][2]==1)
```

L=1   R=4
for i=1
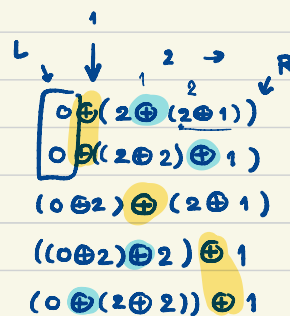L,i → L=1 i=1 return $(0 \ominus 2) \oplus (2 \oplus 1)$
i+1,R → i+1=2 R=4 $((0 \oplus 2) \oplus 2) \oplus 1$
                        $(0 \oplus (2 \oplus 2)) \oplus 1$

L,i → L=2 i=2   return
i+1,R → L=3, R=4 ←   A[3][3][0]=?
                        [1]=?   A[4][4][0]
┌─────────────────────┐ [2]=? →   [1] → A[3][4][2]=1
│ L,i → L=3, i=3 return│   [2]
│ i+1,R → L=4, R=4 return│
└─────────────────────┘
```

```
4 0221

*1
*2
*3[3,4];; [3,3]-[4,4]; 2 + 1 = 2

[3,4];;[3,3] [4,4];0 + 0 = 0
**3[2,4];; [2,2]-[3,4]; 2 + 0/2 = 1

[2,4];;[2,2] [3,4];0 + 0 = 0
**2
*3
*2[2,3];; [2,2]-[3,3]; 2 + 0/2 = 1

[2,3];;[2,2] [3,3];0 + 0 = 0
**2[2,4];; [2,3]-[4,4]; 1 + 1/2 = 1

[2,4];;[2,3] [4,4];0 + 0 = 0
**3[1,4];; [1,1]-[2,4]; 0 + 1 = 1

[1,4];;[1,1] [2,4];1 + 0 = 0
**1
*2
*1[1,2];; [1,1]-[2,2]; 0 + 2 = 0

[1,2];;[1,1] [2,2];1 + 0 = 1
**1
*3[3,4];; [3,3]-[4,4]; 2 + 1 = 2

[3,4];;[3,3] [4,4];0 + 0 = 0
**3[1,4];; [1,2]-[3,4]; 0 + 2 = 0

[1,4];;[1,2] [3,4];1 + 0 = 1
**2
*3
*1
*2[2,3];; [2,2]-[3,3]; 2 + 0/2 = 1

[2,3];;[2,2] [3,3];0 + 0 = 0
**2[1,3];; [1,1]-[2,3]; 0 + 1 = 1

[1,3];;[1,1] [2,3];1 + 0 = 0
**1
*2
*1[1,2];; [1,1]-[2,2]; 0 + 2 = 0

[1,2];;[1,1] [2,2];1 + 0 = 1
**1[1,3];; [1,2]-[3,3]; 0 + 2 = 0
```

① (handwritten marking next to *3[3,4] line)
② (handwritten marking next to [3,4] line)
① (handwritten marking next to **3[2,4] line)
② (handwritten marking next to [2,4] line)

4 0221 (handwritten)