1005 ×××××××

Problem Description

Serika

Serika

n $1, 2, 3, \cdots, n$ i $1 \le i \le n$ k_i $p_{i,1}, p_{i,2}, p_{i,3}, \cdots, p_{i,k_i}$

i $1 \le i \le n$ $[1, k_i]$ ×××××

$a_{i,1}, a_{i,2}, a_{i,3}, \cdots, a_{i,k_i}$

- $p_{i,a_{i,j}}$ $1 \le i \le n$ $1 \le j \le k_i$ ××× $p_{i,a_{i,\max(j-1,1)}}$ ××× $p_{i,a_{i,\min(j+1,k_i)}}$

- i $1 \le i \le n$ ××××× $p_{i,a_{i,1}}$

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- $\leftarrow$ ×××
- $\rightarrow$ ×××
- $\downarrow$ ×××

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Input

×××××××××××××

T $1 \leq T \leq 10$

$n + 2$

n $1 \leq n \leq 300$

L R D S $1 \leq |S| \leq 300$ L
←   R   →   D   ↓

n $i + 2$ $1 \leq i \leq n$ k_i $0 \leq k_i < n$ i
k_i $p_{i,1}, p_{i,2}, p_{i,3}, \cdots, p_{i,k_i}$ $1 \leq$
$p_{i,1}, p_{i,2}, p_{i,3}, \cdots, p_{i,k_i} \leq n$ i

Output

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Sample Input

```
2
4
DLRLDR
2 2 3
0
1 4
0
10
LRLLDLRRLLDLDDDLLRLD
3 2 3 4
0
```

```
0
2 5 6
2 8 9
1 7
0
0
1 10
0
```

Sample Output

```
499122180
332748122
```

Hint

- $a_{1,1} = 1, a_{1,2} = 2$ 3
- $a_{1,1} = 2, a_{1,2} = 1$ 4

$\frac{7}{2}$ 998244353   499122180

$\frac{13}{3}$ 998244353   332748122