1005 ×××××××

Problem Description

Serika Serika $1, 2, 3, \cdots, n$ $i 1 \leq$ n $i \leq n \qquad \qquad k_i$ $p_{i,1}, p_{i,2}, p_{i,3}, \cdots, p_{i,k_i}$ $i \hspace{0.1cm} 1 \leq i \leq n \hspace{1.5cm} [1,k_i]$ \times \times \times \times $a_{i,1}, a_{i,2}, a_{i,3}, \cdots, a_{i,k_i}$ $p_{i,a_{i,j}}$ $1 \leq i \leq n$ $1 \leq j \leq k_i$ $p_{i,a_{i,\max(j-1,1)}}$ \times \times \times \times $p_{i,a_{i,\min(j+1,k_i)}}$ $i \ 1 \leq i \leq n$ \times \times \times \times $p_{i,a_{i.1}}$ Serika Koyuki Millennium Science School \times \times \times \times \times \times

Input

\times \times \times \times \times \times \times \times \times

$$T \hspace{0.1cm} 1 \leq T \leq 10$$
 $n+2$ $n \hspace{0.1cm} 1 \leq n \leq 300$ $\qquad \qquad L \hspace{0.1cm} R \hspace{0.1cm} D \hspace{0.1cm} S \hspace{0.1cm} 1 \leq |S| \leq 300 \hspace{0.1cm} L \ \leftarrow \hspace{0.1cm} R \hspace{0.1cm}
ightarrow \hspace{0.1cm} D \hspace{0.1cm} \downarrow \hspace{0.1cm} n \hspace{0.1cm} i+2 \hspace{0.1cm} 1 \leq i \leq n \hspace{0.1cm} k_i \hspace{0.1cm} 0 \leq k_i < n \hspace{0.1cm} i \hspace{0.1cm} k_i \hspace{0.1cm} p_{i,1}, p_{i,2}, p_{i,3}, \cdots, p_{i,k_i} \hspace{0.1cm} 1 \leq p_{i,1}, p_{i,2}, p_{i,3}, \cdots, p_{i,k_i} \leq n \hspace{0.1cm} i \hspace{0.1cm} j \hspace{$

Output

998244353

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