

Problem L. Two Permutations

Input file: **standard input**
 Output file: **standard output**
 Memory limit: 512 megabytes

There are two permutations $P_1, P_2, \dots, P_n, Q_1, Q_2, \dots, Q_n$ and a sequence R . Initially, R is empty. While at least one of P and Q is non-empty, you need to choose a non-empty array (P or Q), pop its leftmost element, and attach it to the right end of R . Finally, you will get a sequence R of length $2n$.

You will be given a sequence S of length $2n$, please count the number of possible ways to merge P and Q into R such that $R = S$. Two ways are considered different if and only if you choose the element from different arrays in a step.

Input

The first line contains a single integer T ($1 \leq T \leq 300$), the number of test cases. For each test case:

The first line contains a single integer n ($1 \leq n \leq 300\,000$), denoting the length of each permutation.

The second line contains n distinct integers $P_1, P_2, \dots, P_n$ ($1 \leq P_i \leq n$).

The third line contains n distinct integers $Q_1, Q_2, \dots, Q_n$ ($1 \leq Q_i \leq n$).

The fourth line contains $2n$ integers $S_1, S_2, \dots, S_{2n}$ ($1 \leq S_i \leq n$).

It is guaranteed that the sum of all n is at most 2 000 000.

Output

For each test case, output a single line containing an integer, denoting the number of possible ways. Note that the answer may be extremely large, so please print it modulo 998 244 353 instead.

Example

standard input	standard output
2	2
3	0
1 2 3	
1 2 3	
1 2 1 3 2 3	
2	
1 2	
1 2	
1 2 2 1	