

Tree Shuffling

Input file: standard input
Output file: standard output
Time limit: 3 seconds
Memory limit: 256 megabytes

Froggy has an unrooted tree T with n vertices, where each vertex has an initial weight. Initially, the weight of vertex i is i .

Froggy can perform at most 1 operation sequentially as follows:

- Select several distinct vertices x_1, x_2, \dots, x_k , such that for $i = 1, 2, \dots, k - 1$, there exists an edge in tree T connecting vertex x_i and vertex x_{i+1} .
- From the set x_1, x_2, \dots, x_k , choose an even number of vertices u_1, u_2, \dots, u_{2l} (vertices can be chosen repeatedly). For $i = 1, 2, \dots, l$, sequentially swap the weights of vertex u_{2i-1} and vertex u_{2i} .

Let a_i denote the weight of vertex i after all operations. How many distinct sequences a_1, a_2, \dots, a_n can Froggy obtain? Output the answer modulo 998244353.

Input

The first line contains a positive integer T ($1 \leq T \leq 10^3$), indicating the number of test cases.

For each test case, the first line contains an integer n ($1 \leq n \leq 3000$), representing the number of vertices in the tree.

The next $n - 1$ lines each contain two positive integers x, y ($1 \leq x, y \leq n, x \neq y$), representing the two endpoints of an edge in tree T .

It is guaranteed that the sum of n over all test cases in a single test point does not exceed 1.5×10^4 .

Output

For each test case, output one integer representing the answer modulo 998244353.

Example

standard input	standard output
3	23
5	80
1 2	155
1 3	
1 4	
1 5	
6	
1 2	
1 3	
1 4	
2 5	
2 6	
6	
1 2	
2 3	
2 4	
3 5	
4 6	