Ying's Cup

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	1024 mebibytes

Given an undirected tree $T = (V, E)$ of size n, for each $k = 1, 2, \ldots, n$, determine how many permutations $a_1, a_2, \ldots, a_n$ of 1 to n have exactly k vertices as *local minima*, modulo 998 244 353.

A vertex u is a *local minimum* if and only if $a_u < a_v$ for all $(u, v) \in E$. In other words, a_u is smaller than any of its neighbors.

Input

The first line contains a number n ($1 \leq n \leq 500$).

Each of the next $n - 1$ lines contains two integers, x_i and y_i: the endpoints of an edge ($1 \leq x_i, y_i \leq n$).

Output

Output n lines, each containing a non-negative integer: the answers for $k = 1, 2, \ldots, n$ modulo 998 244 353.

Example

standard input	*standard output*
5 1 2 1 3 2 4 2 5	28 54 38 0 0