Problem L. Perfect Matchings

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	512 megabytes

AAA gets a complete graph of $2n$ vertices, where every pair of distinct vertices is connected by a unique edge, as a birthday present. However, AAA thinks the complete graph is not that beautiful and he decides to delete $2n - 1$ edges that form a tree.

Now he wonders the number of different perfect matchings in the remaining graph. Note that a perfect matching is a set of n edges where no two edges share a common vertex. Since the answer may be very large, you only need to output the answer modulo 998 244 353.

Input

The first line contains a single integer n ($2 \leq n \leq 2\,000$).

Each of the next $2n - 1$ lines contains two integers u and v ($1 \leq u, v \leq 2n$), representing an edge deleted from the complete graph. It is guaranteed that the given edges form a tree of $2n$ vertices.

Output

Output a line containing a single integer, representing the answer modulo 998 244 353.

Examples

standard input	standard output
2 1 2 1 3 3 4	1
3 1 2 2 3 3 4 4 5 5 6	5