

Problem SNAKE: Snake

There is a new toddler game on the market, that parents are buying like crazy. It is a cute little card game. You start with a designated card and replace one card by two other cards until you have a loooooooooooooooooong snake your toddler likes. To have more fun you can make up the rules how cards can be replaced by yourself, the only restriction is, that one card has to be substituted by two cards. Otherwise your toddler is disappointed because the snake is not growing. Assume the starting card is called *Snake* and you have the following snake replacement rules:

```
Snake replaced with Head Tail
Head  replaced with Head Body
Body  replaced with Body Body
```

Then the following snakes can be built:

```
Head Body Body Body Body Tail
Head Body Body Body Tail
Head Body Body Tail
Head Body Tail
Head Tail
```

Of course even longer snakes are possible.

Your task is now to decide whether a set of given snakes can be built from a set of snake rules. To make it for grown-ups like you more interesting, you should give the number of possibilities to construct a snake from the rules.

Input

The input consists of two parts. First the rules are given and second snakes are given. The rules part starts with an integer in the first line saying how many rules are following. Each rule is written in a separate line. A rule starts with the name of the card to be replaced followed by the names of the two cards it can be replaced with. One card can be only replaced by two other cards. In the line following the rule definitions an integer is given with the number of snakes possibly built from the rules. Each snake is written in one line.

Output

For each possible snake given in the input it must be decided whether this snake can be built with the help of the given rules. If a snake can be accepted the output is the number of ways to construct the snake, otherwise it is *No*. Each decision is printed in a new line.

Sample Input 1

```
3
Snake Head Tail
Head Head Body
Body Body Body
6
Head Body Wing Tail
Head Body Body Body
Head Body Body Tail
Body Head Body Tail
Head Body Tail
Head Tail
```

Sample Output 1

```
No
No
2
No
1
1
```