A *Doublet* is a pair of words that differ in exactly one letter; for example, "booster" and "rooste or "rooster" and "roaster" or "roaster" and "roasted".

You are given a dictionary of up to 25143 lower case words, not exceeding 16 letters each. You a then given a number of pairs of words. For each pair of words, find the shortest sequence of words th begins with the first word and ends with the second, such that each pair of adjacent words is a doubl For example, if you were given the input pair "booster" and "roasted", a possible solution would b ("booster", "rooster", "roaster", "roasted") provided that these words are all in the dictionary.

## Input

Input consists of the dictionary followed by a number of word pairs. The dictionary consists of a numb of words, one per line, and is terminated by an empty line. The pairs of input words follow; the wor of each pair occur on a line separated by a space.

## Output

For each input pair, print a set of lines starting with the first word and ending with the last. Each pa of adjacent lines must be a doublet.

If there are several minimal solutions, any one will do. If there is no solution, print a line: 'N `solution.`' Leave a blank line between cases.

## Sample Input

```
booster
rooster
roaster
coasted
roasted
coastal
postal

booster roasted
coastal postal
```

## Sample Output

```
booster
rooster
roaster
roasted

No solution.
```