## Problem C: Catenyms

A catenym is a pair of words separated by a period such that the last letter of the first word is the same as the last letter of the second. For example, the following are catenyms:

dog.gopher

gopher.rat

rat.tiger

aloha.aloha

arachnid.dog

A compound catenym is a sequence of three or more words separated by periods such that each adjacent pair of words forms a catenym. For example,

aloha.aloha.arachnid.dog.gopher.rat.tiger

Given a dictionary of lower case words, you are to find a compound catenym that contains each of the words exactly once. The first line of standard input contains *t*, the number of test cases. Each test case begins with 3 <= *n* <= 1000 - the number of words in the dictionary. *n* distinct dictionary words follow; each word is a string of between 1 and 20 lowercase letters on a line by itself. For each test case, output a line giving the lexicographically least compound catenym that contains each dictionary word exactly once. Output "\*\*\*" if there is no solution.

### Sample Input

2

6

aloha

arachnid

dog

gopher

rat

tiger

3

oak

maple

elm

### Output for Sample Input

aloha.arachnid.dog.gopher.rat.tiger

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