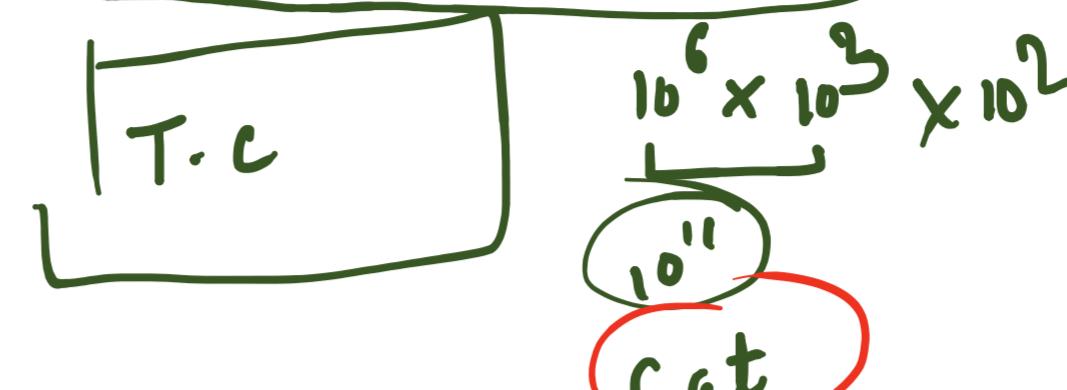In English, we have a concept called **root**, which can be followed by some other word to form another longer word - let's call this word **derivative**. For example, when the **root** `"help"` is followed by the word `"ful"`, we can form a derivative `"helpful"`.

Given a `dictionary` consisting of many **roots** and a `sentence` consisting of words separated by spaces, replace all the derivatives in the sentence with the **root** forming it. If a derivative can be replaced by more than one **root**, replace it with the **root** that has **the shortest length**.
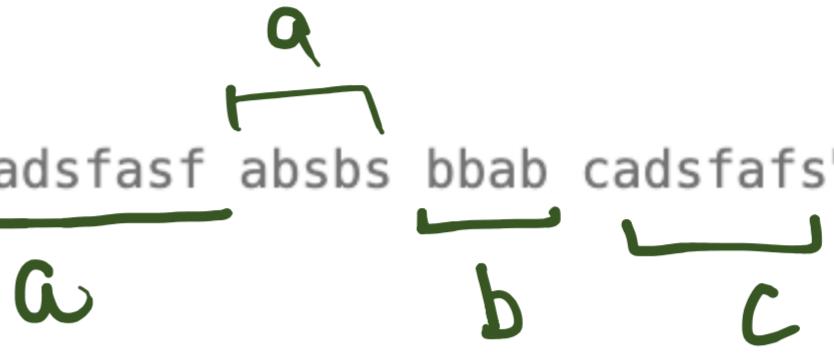
Return the `sentence` after the replacement.

T.c

$10^6 \times 10^3 \times 10^2$

10^{11}

cat

Example 1:

```
Input: dictionary = ["cat","bat","rat"], sentence = "the cattle was rattled
by the battery"
Output: "the cat was rat by the bat"
```
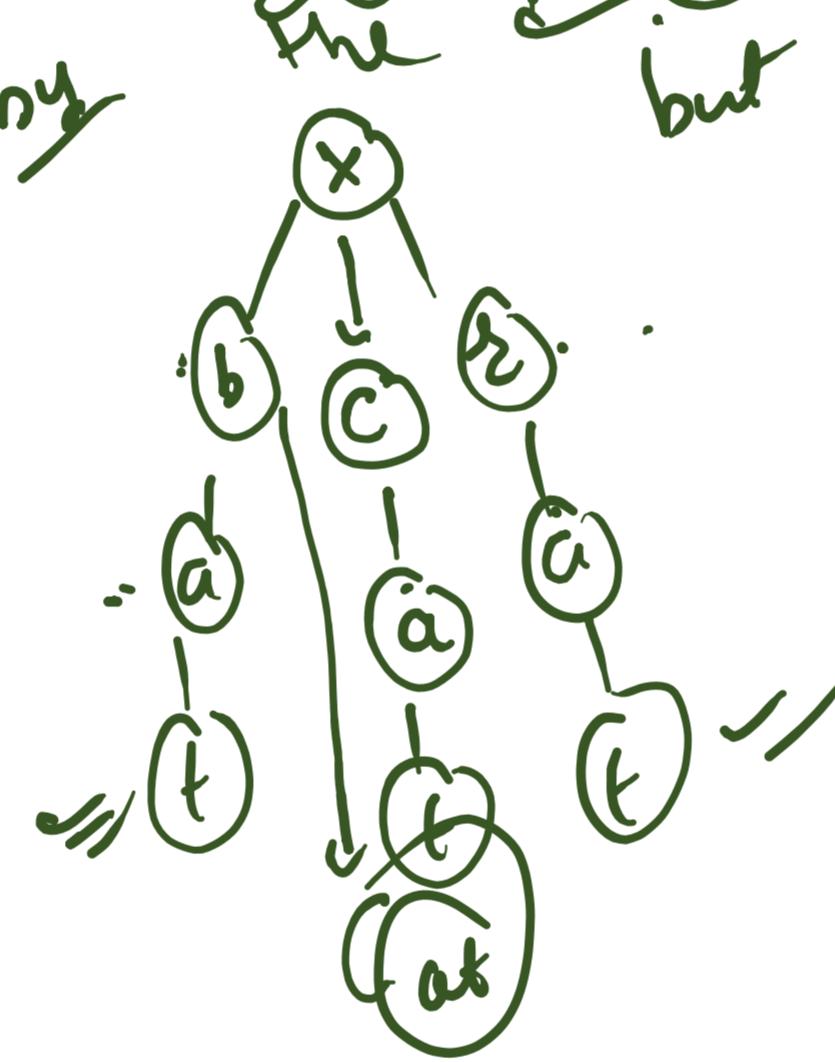
ball

catt   ret

Example 2:

```
Input: dictionary = ["a","b","c"], sentence = "aadsfasf absbs bbab cadsfafs"
Output: "a a b c"
```

a

a   b   c

([cat, bat, rat, catt]

dictionary = ["cat","bat","rat"], sentence = "the cattle was rattled by the battery"

cas   was   rat   by   the   but   the

words = ["oath","pea","eat","rain"]

[oathy eat]