Concatenated Words

Saturday, 27 November 2021 8:00 PM

word1 + word2 = word3

word1 ∈ dict
word2 ∈ dict
word3 ∈ dict

word1 + word2 + word3 = word4.

word1 + word2 + ... + word i = word j

word1 & word2 can be same word.

prefix free.
TRIE

8
cat
cats
catsdogcats → Result
dog
dogcatsdog
hippopotamuses
rat
ratcatdogcat

For Example →

cats + dog + cats → catsdogcats

dog + cats + dog → dog catsdog

cats + dog → catsdog

rat + cat + dog + cat → ratcatdogcat

cat + cat → catcat

dog + catsdog → dog catsdog ✗

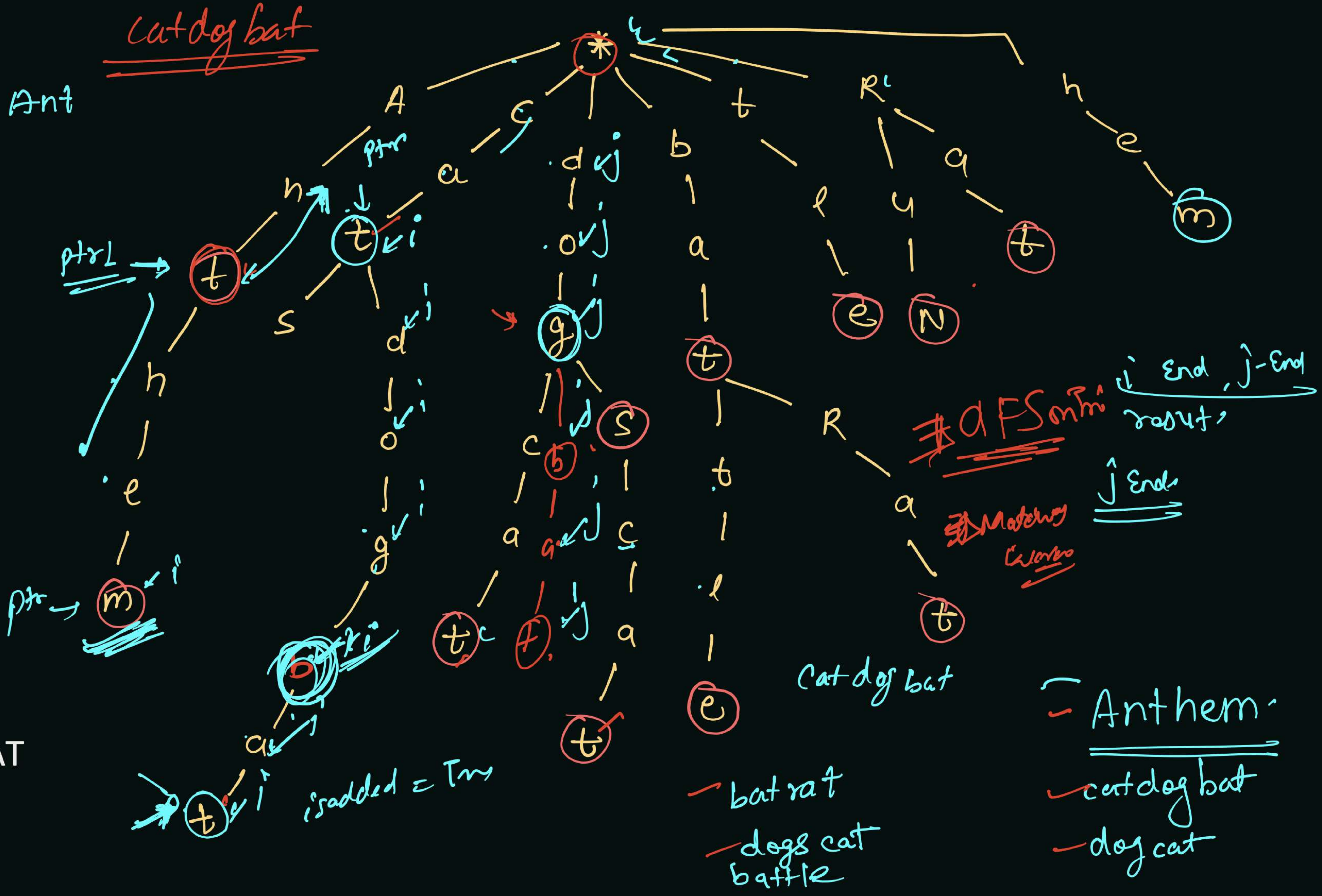
cat + cat + cat → catcatcat

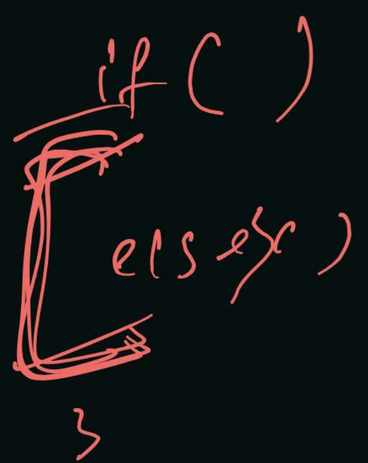
unique result required.

limit = longest length Element

→ catsdog.
→ catcat
→ catcat cat

SCAT
CAT
CATS
DOG
⇒ DOGCAT
BAT
⇒ BATTLE
TLE
RAT
⇒ BATRAT
RUN
⇒ DOGSCAT
ANT
⇒ ANTHEM
HEM
⇒ CATDOGBAT
dogs





cat

cats

catdog

catdogbat

dog.

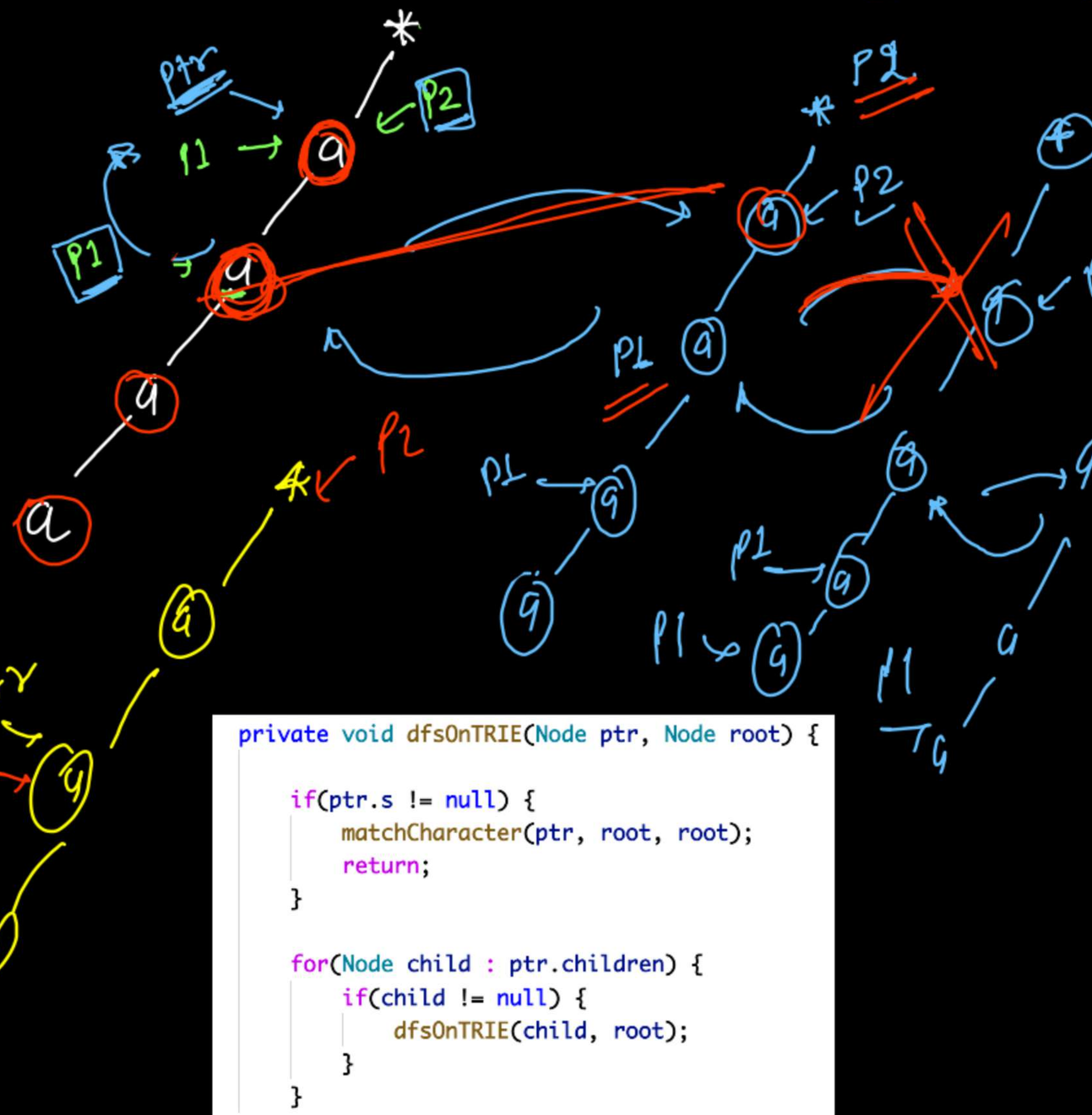
dogbat

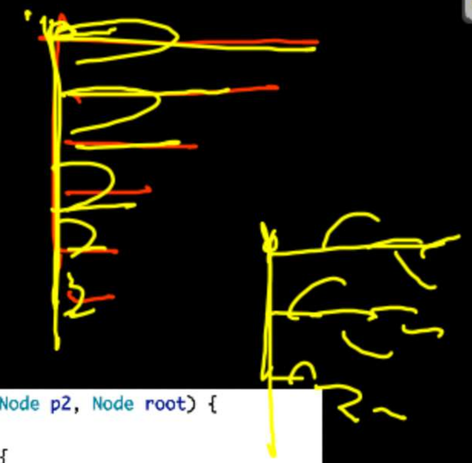
cat + dog = catdog

cat + dogbat = catdogbat

catdog.

dict - a, aa, aaa, aaaa





```
private void dfsOnTRIE(Node ptr, Node root) {

    if(ptr.s != null) {
        matchCharacter(ptr, root, root);
        return;
    }

    for(Node child : ptr.children) {
        if(child != null) {
            dfsOnTRIE(child, root);
        }
    }
}
```

```
private void matchCharacter(Node p1, Node p2, Node root) {

    if(p1.s != null && p2.s != null) {
        // p1 id ptr from dfsOnTRIE
        if(p1.isAdded == false)
            res.add(p1.s);

        p1.isAdded = true;
    }
    if(p2.s != null) {
        matchCharacter(p1, root, root);
    }

    for(int i = 0; i < 26; i++) {
        if(p1.children[i] != null && p2.children[i] != null) {
            matchCharacter(p1.children[i], p2.children[i], root);
        }
    }
}
```

a a
a a a
a a a a