Tree's and Trie's

Ukkonan's Alg

Implicit trees for S

1. in iteration i, tree I_{i+1} is constructed from I_i
2. this is done by i+1 extensions one for each of the i+1 suffixes of S[1,...,i+1]
3. In iteration (i,j), alg finds hte end of path from root w/ substrings S[j,...,i]
4. Exend substring by adding char S(i+1) to end unless it's already there

Summary in iteration i s[1,...,i+1] is put in tree s[1,...,i+1], s[2,...,i+1]...

Cases;
Constant I_1

```
for i in range(1,m):
    for j in range(1,i+1):
        find the end of path from root to S[j...i] # Suffix
        if needed, extend by appending S(i+1)
        so now s[j...i+1] is in the tree
```

LEMMA: If some internal node v with path label $x\alpha$ was just added into tree at extension j, then

1. α already ends at internal node
2. an internal node at the end of α will be created in j+1