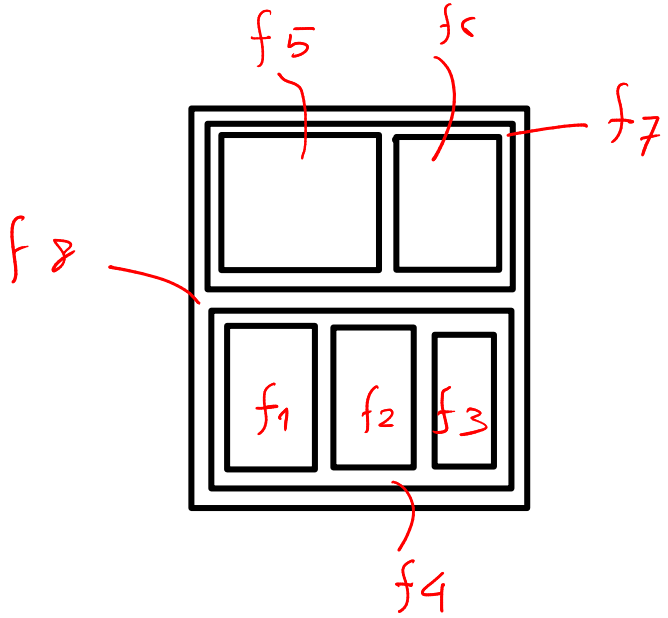


Top-down decomposition Problem

Bottom-up composition of solution

Internal details:

- Data : Local variable
- Processing: Code

Functions can call other functions.

Defensive Programming

Pythonic

Lexical scoping → Inside out

RECURSION.

1. Familiar
2. natural problem solving method.

$0 < n \leq \infty$

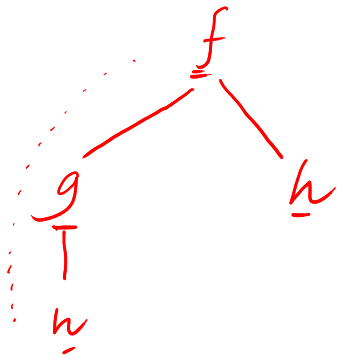
$$F(n) = 1 \quad \text{if } n = 1$$
$$= n \times F(n-1) \quad \text{otherwise}$$

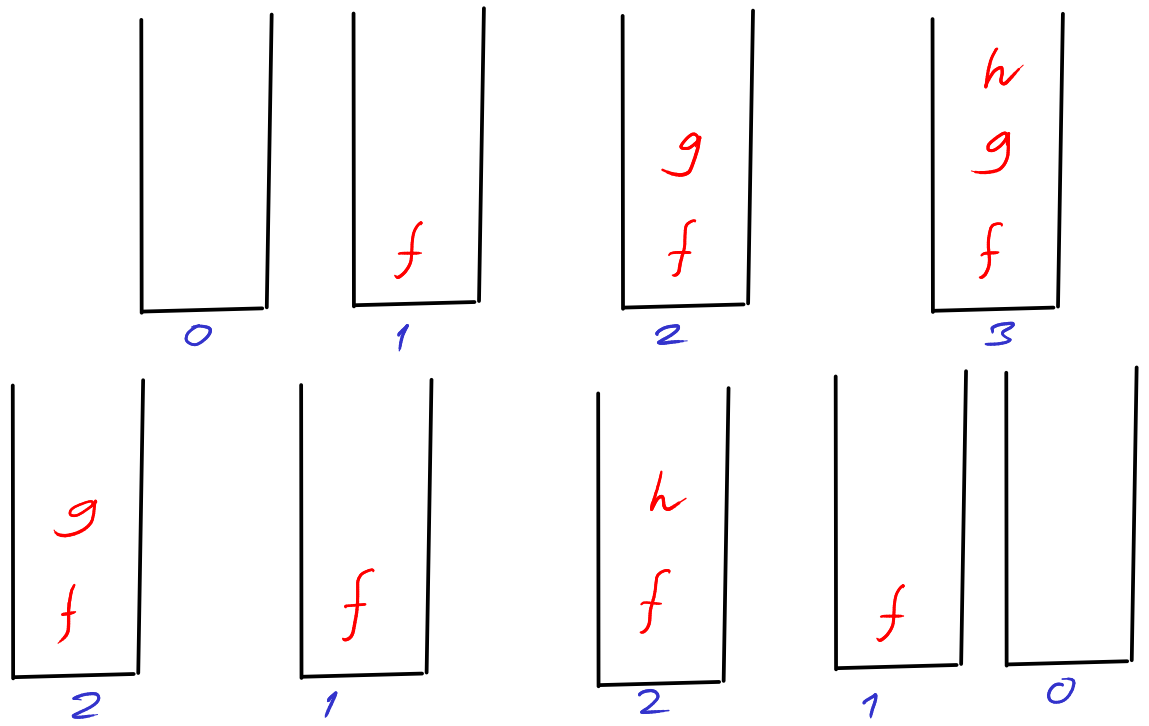
Computational Tree Program Stack

f : g h

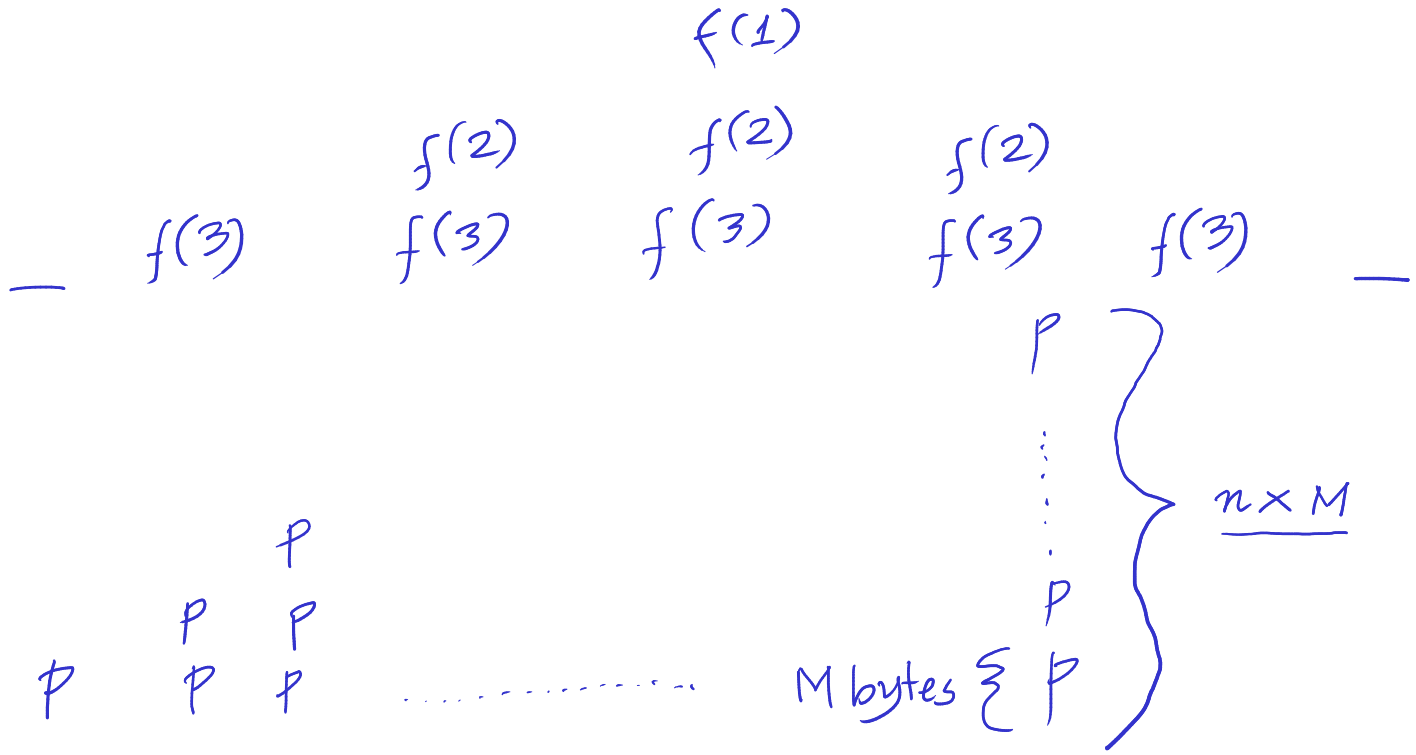
g : h

h





Elements of program stack — Activation record



Stack overflow

Readability
Modularity
Maintainability
> Performance (Execution speed)

To iterate is human. To recurse, divine.