

# CS 445 4/16/19 Code Generation

0. I/O: read/write  $\Rightarrow$  scanf/printf
1. generate() in §9.10 handles (only) expressions (not statements)

begin  
write(13)  
end.

var x: integer;  
begin  
read(x); write(x)  
end.

expressions (not statements)

vs

Variable := Expression

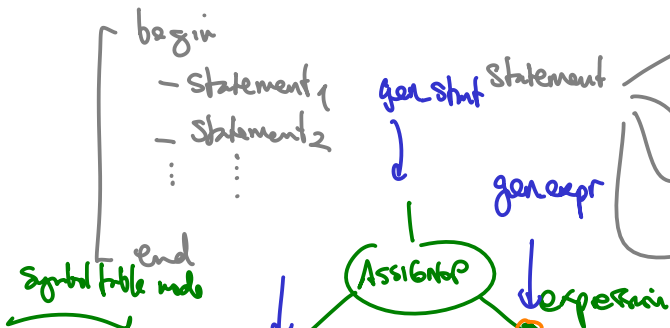
assignment statement

Conditional statement (IF-THEN-ELSE)

loop statement (WHILE)

Call statement (PROCEDURE)

IF Expression THEN  
Statement  
ELSE  
Statement



return value  $\Rightarrow$  register R1

MOV R1, [boo-d]

Location in memory where boo exists

Register file

R1 value

stack pointer

base pointer of the current activation record

main

dynamic runtime stack

program main(input, output);

var a, b, c: integer;

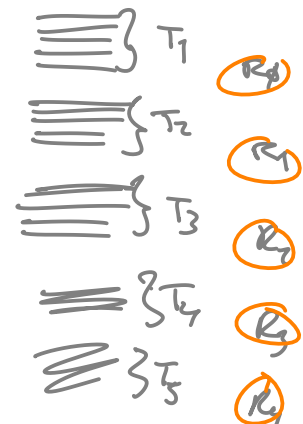
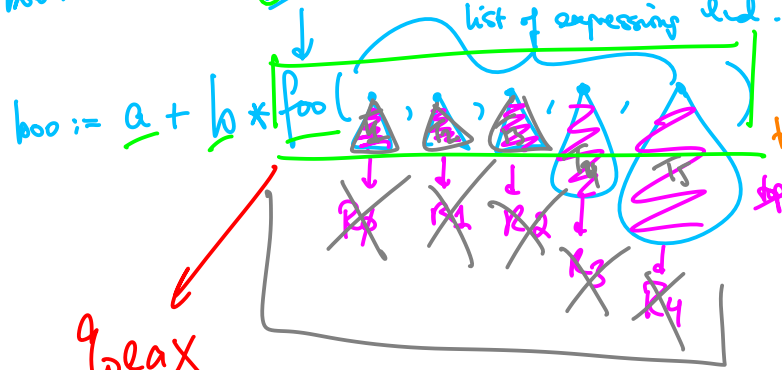
begin

  a := 13

end.

foo:

boo := a + b \* c



Call foo ?

