

Concepts of Programming Languages, CSCI 305, Fall 2021

Scope Rules, Nov. 10

1. Consider the following Pascal program.

```

program scopes (input, output );
  var a : integer;

  procedure first;
    begin a := 1; end;

  procedure second;
    var a : integer;
    begin first; end;

begin
  a := 2; second; write(a);
end

```

- What is outputted when static scope is used?
1 is written
- What is outputted when dynamic scope is used?
2 is written

2. Exercise 3.11, page 171

Consider the following pseudocode:

```

procedure P(A, B : real)
  X : real

  procedure Q(B, C : real)
    Y : real
    ...

  procedure R(A, C : real)
    Z : real
    ... — (*)

  ...

```

Assuming static scope, what is the referencing environment at the location marked by (*)?

Answer:

Procedure P with the real variables B and X
 Procedure Q
 Procedure R with real variables A, C and Z