

Names, Scope, and  
Bindings  
Chapter 3

Scope

# Programming Languages

# Objective

Today's primary objective:

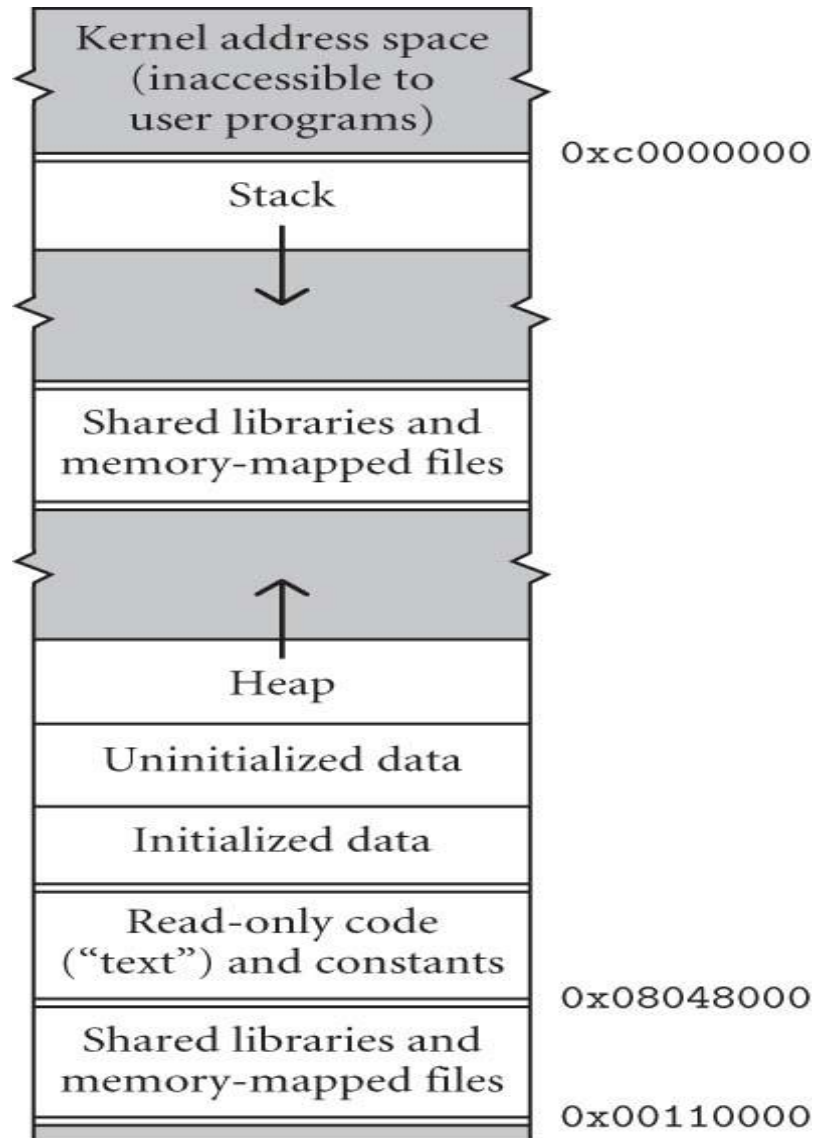
- Help you understand stack storage

# Memory Management (from before)

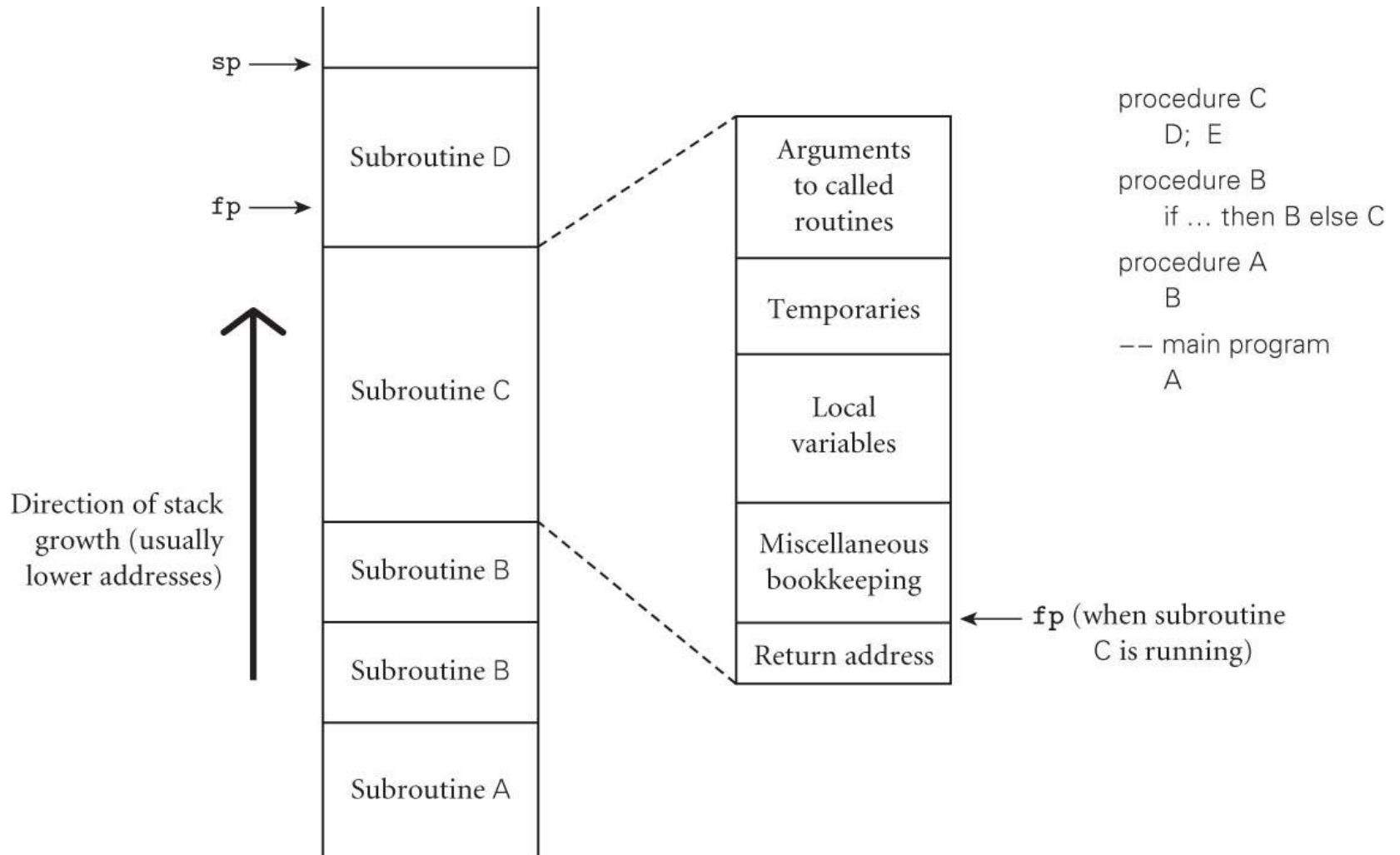
Three primary mechanism for managing the lifetime of an object in memory:

- Static allocation
- **Stack allocation** <- **Manages scope**
- Heap allocation

# Typical Memory Layout



# Stack Frame

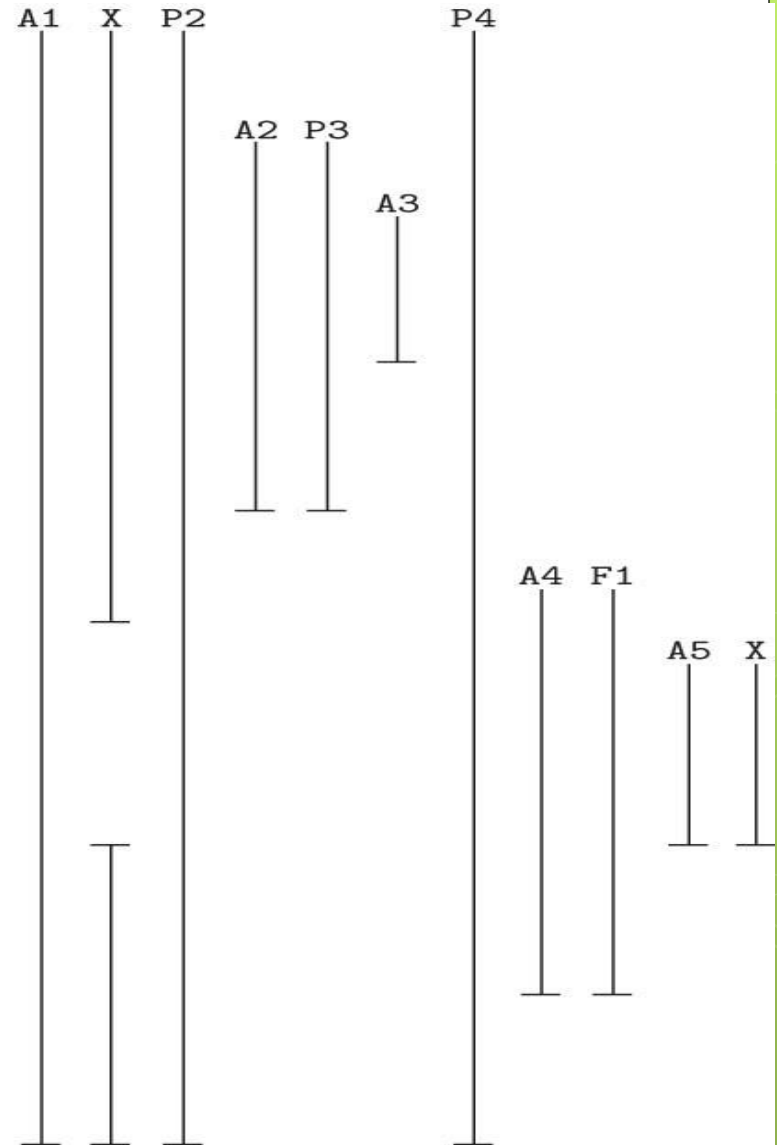


# Scope of Variables

```

procedure P1(A1 : T1);
var X : real;
...
  procedure P2(A2 : T2);
    ...
    procedure P3(A3 : T3);
      ...
      begin
        ...      (* body of P3 *)
      end;
      ...
    begin
      ...      (* body of P2 *)
    end;
    ...
  procedure P4(A4 : T4);
    ...
    function F1(A5 : T5) : T6;
    var X : integer;
    ...
    begin
      ...      (* body of F1 *)
    end;
    ...
  begin
    ...      (* body of P4 *)
  end;
  ...
begin
  ...      (* body of P1 *)
end

```



# Static Chains

