Chapter 8 Discussion

Chapter 8.1-8.3 and 8.5
(pp 383-408 and 417-425)
Parameter passing mechanisms

• Work in small groups
• Don’t look at the text or your notes
• List as many parameter passing mechanisms as you can recall.
  – For each mechanism list a feature it enables or a benefit it supplies
Call by value

• The following E3 program passes parameters by value.
  
  ( (global x 5)
    (global y 2)
    (fun f (x y) (local (temp x)
      (block (:= x y)(:= y temp))))))
  
  (f x y)

• At the end of the program what holds? choose 1
  – X has value 5
  – Y has value 5
  – Y has value 0
Call by reference

• The following E3 program passes parameters by reference

\[
( (\text{global } x \ 5) \\
(\text{global } y \ 2) \\
(\text{fun } f (a \ b) (\text{local } (\text{temp } x)\
\quad (\text{block}(:= x y)(:= y \text{ temp}))) ) \\
(f \ x \ y)
\]

• At the end of the program what holds? choose 1
  – X has value 2
  – Y has value 2
Call by value-return

• The following E3 program passes parameters by value return

( (global x 5)
  (global y 9)
  (fun f (a b c)
    (block(:= a 1) (:= b 2)))
  (:= y (f x x y)) )

• At the end of the program what holds? choose 1
  – X has value 1
  – Y has value 2
  – Y has value 9
In and Out parameters

- Work in small groups
- Don’t look at the text or your notes
- What’s the difference between In, out, CBV, and CBR?