

CSE 341: Programming Languages

Winter 2006

Lecture 3— Let bindings, options, and benefits of no mutation

Let bindings

Motivation: Functions without local variables can be poor style and/or really inefficient.

Syntax: `let b1 b2 ... bn in e end` where each `bi` is a *binding*.

Typing rules: Type-check each `bi` and `e` in context including previous bindings. Type of whole expression is type of `e`.

Evaluation rules: Evaluate each `bi` and `e` in environment including previous bindings. Value of whole expression is result of evaluating `e`.

Elegant design worth repeating:

- Let-expressions can appear anywhere an expression can.
- Let-expressions can have any kind of binding.
 - Local functions can refer to any bindings *in scope*.

More than style

Exercise: hand-evaluate `bad_max` and `good_max` for lists `[1,2]`, `[1,2,3]`, and `[3,2,1]`.