CS 603: Programming Language Organization

Lecture 8

Spring 2004

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Outline

- Announcements
- Questions
- Impcore Interpreter
- Reading for next time

Colloquium

Wan Huang
University of Alabama

Intelligent Trust Evaluation and Self-Organizing Multi-Agent Community

http://cs.ua.edu/9Colloquium.abs/Wan.htm

Friday, January 30
11 am, HO108

Impcore Interpreter: Evaluation

- Heart of the interpreter—`topeval` and `eval`
- Arguments follow form of operational semantics

Pair Up: • What was the form of the {downarrow} relation?

• What did it signify?

```
· Value eval(Exp *e, Valenv
*globals, Funenv *functions,
Valenv *formals)
```

Impcore Interpreter: Evaluation (cont.)

- Evaluation of tree structure
  - Dispatch on type of node at root
  - Recursively execute children
  - Execute tree

Pair Up:

- What field of the AST representation do we dispatch on?
- How do you dispatch on type in a non-OO language like C?

Impcore Interpreter: Evaluation (cont.)

- For each AST type, there may be multiple applicable judgments in the operational semantics
  - `VAR` has FORMALVAR and GLOBALVAR

Pair Up:

• Write the mappings from tags to judgment names for the rest of the `Exp` productions

Impcore Interpreter: Evaluation (cont.)

- The form of eval is then:

```
switch (e->typ) {
case TAG:
  evaluate rhs if shared premise exists
  chose and execute appropriate judgment
...
}
```

Impcore Interpreter: Evaluation (cont.)

- What is done in implementing each of the productions?

Reading & Questions for Next Class

- Chapter 3-3.7
  - You might also want to look at the online version of the book “Structure and Interpretation of Computer Programs” at:http://mitpress.mit.edu/sicp/
- What most differentiates Scheme from C or C++?