


CSE 3302   
Programming Languages

## MidTerm Reviews

Chengkai Li, Weimin He  
Spring 2008

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## Materials Not Covered

- Chapter 3
  - 3.1, 3.2, 3.3, 3.4, 3.5
- Chapter 4
  - 4.7
- Chapter 6
  - 6.8, 6.9
- Chapter 7
  - 7.4, 7.5

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## Materials Not Covered

- Chapter 8
  - 8.4, 8.5, 8.6
- Chapter 9
  - 9.6, 9.7, 9.8
- Object-Oriented Programming (However Java will be covered, for its imperative programming aspects.)

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## Important Knowledge Points

- History
  - History of various programming languages
  - Key features for each programming language

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## Important Knowledge Points

- Syntax
  - Regular Expression
  - Context-Free Grammar
  - Leftmost Derivation
  - BNF & EBNF
  - Parse Tree & Abstract Syntax Tree
  - Ambiguity Elimination
  - Dangling Else
  - Left Recursion Elimination & Left Factoring

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## Important Knowledge Points

- Semantics
  - Name & Binding
  - Symbol Table
  - Static(Lexical) Scope vs. Dynamic Scope
  - Different Method Overload Resolution Rules in different languages
  - Environment for variables
  - Scope vs. Life Time
  - Box-and-Circle Diagram

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## Important Knowledge Points



- Data Types
  - Enumerated types
  - Type Equivalence
  - Structural Equivalence vs. Name Equivalence
  - Struct & Union in C
  - Type conversion
  - Type casting in Java

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## Important Knowledge Points



- Control
  - Expression vs. Statement
  - Side Effect
  - Applicative Order Evaluation
  - Short-Circuit Evaluation
  - Normal order evaluation
  - Environment for procedures or functions
  - Parameter Passing Mechanisms

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## Important Knowledge Points



- Abstract Data Types
  - Algebraic Specification
  - Different Module Mechanisms in different languages

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## Pass by Text



```
int i;
int p(int y) {
    int j = 1;
    return y;
}
void q(void) {
    int j;
    i = 2; j = 2;
    printf("%d\n", p(i+j));
}
main(){
    q();
}
```

Print 3 using pass by text

Print 4 using pass by name

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