Semantic Analysis

CS 3420/6240

Inheritance Graph

- ➔ Creation.
- ➔ Root “Object”.
- ➔ Dummy class definitions.
  - ◆ Method
    - Out_string
    - in_int
- ➔ Cycle detection.
- ➔ Make sure graph has a Main class.
- ➔ No more than one definition of a class.

SymTab generation

- ➔ Traverse Tree
  - Declarations.
  - Insert into symbol table.
  - Consider scope.

Type Checking

- ➔ Traverse AST.
- ➔ Detect and report type errors if any.
- ➔ Annotate type.
  - ◆ Type Inference
- ➔ Type checking rules : Refer Cool Manual
- ➔ Pay attention - Static dispatch.

Type Inference

- ➔ Join
- ➔ Conformance
- ➔ Rules - Refer Cool Manual
- ➔ Pay attention - If-else, Switch statement.

Scoping

- ➔ Most recent declaration.
  - ◆ Search symbol table !
  - ◆ Oh yes ! Another easy trick !
    - Encode variables in nice way !
- ➔ Report errors if not found in symbol table.
- ➔ Else infer and annotate type.

Traversing AST

- Visitor Pattern
- If-else ladder
- InstanceOf

Output

- ➔ Correct Annotations
- ➔ Appropriate error messages.
- ➔ **Intuitive expl. of design decisions (README)**


SUPERB
WALLPAPERS
That's all Folks!