Defining Semantics

9-9-2004
Opening Discussion

- What did we talk about last class?
Your Discussion Questions

- Let's look over your discussion questions. We'll start by doing the last few from last class.
Static Semantics

- Defining the rules that can't be put in BNF or are inefficient to do that way.
  - Attribute grammars – symbols can have attributes with them, productions can have attribute computation functions, and predicate functions.
  - Inherited attributes are passed down, synthesized attributes are passed back up, and intrinsic attributes come from something like the lookup table and only impact the leaves.
  - For a parse to be correct, all of the predicates have to be true for the computed attributes.
Dynamic Semantics

- Defining the meaning of statements.
  - Operational semantics – use a simpler language.
  - Axiomatic semantics – proving programs correct with logic. Go back through the program finding weakest preconditions.
  - Denotational semantics – defining what programs mean through math.