Attribute Grammars

* Three Attributes
  + Synthesized Attributes
  + Inherited Attributes
  + Intrinsic Attributes

Axiomatic Semantics

* **Precondition**: Assertion before the statement that states the relationships and constraints among variables that are true at the point of execution
* **Postcondition**: An assertion following a statement
* **Weakest Precondition**: The least restrictive precondition that will guarantee the postcondition
* Example
  + a = b + 1 {a > 1}
  + Possible precondition: {b > 10}
  + Weakest precondition: {b > 0}

Program Proof Process

* The postcondition for the entire program is the desired result
  + Work back through the program to the first statement. If the precondition on the first statement is the same as the program specification, the program is correct.

Loop Invariant

* The loop invariant “I” is a weakened version of the loop postcondition, but as a precondition
* “I” must be weak enough to be satisfied prior to the beginning of the loop, but when combined with the exit condition must be strong enough to force the truth of the postcondition.