

## Semantics Questions

What is meant by operational semantics?

Explain the difference between an interpreter and a compiler.

What kinds of language can a compiler translate a program into?

Explain the difference between dynamic binding and static binding.

When does Java use dynamic binding?

Explain the difference between static expressions and dynamic expressions.

Where does C require a static expression but Java allows a dynamic expression?

Where in Java are L-values (not R-values) required?

Explain the difference between the scope and lifetime of an identifier.

What kinds of identifiers does Java have?

Explain the difference between static allocation and dynamic allocation.

What properties of Fortran permit static allocation?

Describe the components of an activation record in a block-structured language.

What is the purpose of the dynamic (static) link?

How are variables accessed on the runtime execution stack?

How are variables identified within an activation record?

How is the static link determined when a block is entered?

What is a descriptor? Why is it needed?

What data cannot be stored on the runtime execution stack?

Explain the difference between static scoping and dynamic scoping.

Why are static links unnecessary with dynamic scoping?

Explain the seven methods for transmitting parameters to a method.

Describe the ambiguities in pass by result.

What is a *thunk*?

What problem can arise with parameter passing in Fortran?

What parameter passing technique does function parameters simulate?

What feature of Java simulates function parameters?

What are overloading classes in a programming language?

Describe the four name spaces in Java.