Duration and Linkage

Specifying Duration

Storage Class Specifier (vertical label)

Scope

	Block Scope	File Scope
None	Automatic Duration	Static Duration
auto	Automatic Duration	N/A
extern	Static Duration	Static Duration
register	Automatic Duration	N/A
static	Static Duration	Static Duration

Specifying Linkage for Functions

Scope

Storage Class Specifier (vertical label)

	Block Scope	File Scope
None	External Linkage*	External Linkage*
auto	N/A	N/A
extern	External Linkage*	External Linkage*
register	N/A	N/A
static	N/A	Internal Linkage

*Unless it was previously (visibly) declared with internal linkage.

Specifying Linkage for Variables

Storage Class Specifier (vertical label)

Scope

	Block Scope	File Scope
None	No Linkage	External Linkage
auto	No Linkage	N/A
extern	External Linkage*	External Linkage*
register	No Linkage	N/A
static	No Linkage	Internal Linkage

*Unless it was previously (visibly) declared with internal linkage.

Declarations and Definitions

Functions

A function heading without a body is a declaration.

A function heading with a body is both a declaration and a definition.

External Variables

If there is an initializer then the statement is both a declaration and a definition.

If there is no initializer and the `extern` specifier is used then the statement is a declaration only.

If there is no initializer and either the `extern` specifier is not used or the `static` specifier is used then the statement is a tentative definition (i.e., it acts as a definition if there is no other definition in the same translation unit).