APPENDIX B
C99 versus C89

This appendix lists many of the most significant differences between C89 and C99. (The smaller differences are too numerous to mention here.) The headings indicate which chapter contains the primary discussion of each C99 feature. Some of the changes attributed to C99 actually occurred earlier, in Amendment 1 to the C89 standard; these changes are marked "Amendment 1."

2 C Fundamentals

// comments
C99 adds a second kind of comment, which begins with `//`.

identifiers
C89 requires compilers to remember the first 31 characters of identifiers; in C99, the requirement is 63 characters. Only the first six characters of names with external linkage are significant in C89. Moreover, the case of letters may not matter. In C99, the first 31 characters are significant, and the case of letters is taken into account.

keywords
Five keywords are new in C99: `inline`, `restrict`, `_Bool`, `_Complex`, and `_Imaginary`.

returning from `main`
In C89, if a program reaches the end of the `main` function without executing a `return` statement, the value returned to the operating system is undefined. In C99, if `main` is declared to return an `int`, the program returns 0 to the operating system.

4 Expressions

/ and % operators
The C89 standard states that if either operand is negative, the result of an integer division can be rounded either up or down. Moreover, if `i` or `j` is negative, the sign of `i % j` depends on the implementation. In C99, the result of a division is always truncated toward zero and the value of `i % j` has the same sign as `i`.