



FIGURE 2.21 A translation hierarchy for C. A high-level language program is first compiled into an assembly language program and then assembled into an object module in machine language. The linker combines multiple modules with library routines to resolve all references. The loader then places the machine code into the proper memory locations for execution by the processor. To speed up the translation process, some steps are skipped or combined. Some compilers produce object modules directly, and some systems use linking loaders that perform the last two steps. To identify the type of file, UNIX follows a suffix convention for files: C source files are named x.c, assembly files are x.s, object files are named x.o, statically linked library routines are x.a, dynamically linked library routes are x.so, and executable files by default are called a.out. MS-DOS uses the suffixes .C, .ASM, .OBJ, .LIB, .DLL, and .EXE to the same effect.