Although most of the registers are no longer restricted to their original purpose, the *stack pointer* (*ESP*) and *base pointer* (*EBP*) still have special meaning. The use of the base and stack pointers during a procedure call is explained below.

## A3.3 Allowable Operands

Operands specify the values to be used in an operation and a location for the result. An operand can specify one of the registers, a location in memory, or a constant. Each instruction specifies the combinations that are allowed. For example, a *mov* instruction copies data from one location to another. *Mov* can copy a constant to a register or to memory, or can copy a data value from a register to memory, from memory to a register, or from one register to another. However, *mov* cannot copy data from one memory location directly to another. Thus, to copy data between two memory locations, a programmer must use two instructions. First, a programmer uses a *mov* to copy the data from memory to a register, and second, a programmer uses a *mov* to copy the data from the register to the new memory location.

Figure A3.2 lists the nomenclature used to describe the set of operands that are allowed for a given instruction.

| Name | Meaning |
|---|---|
| <reg32> | Any 32-bit register, such as EAX, EBX, ... |
| <reg16> | Any 16-bit register, such as AX, BX, ... |
| <reg8> | Any 8-bit register, such as AH, AL, BH, BL... |
| <reg> | Any 32-bit, 16-bit, or 8-bit register |
| <con32> | Any 32-bit constant |
| <con16> | Any 16-bit constant |
| <con8> | Any 8-bit constant |
| <con> | Any 32-bit, 16-bit, or 8-bit constant |
| <mem> | Any memory address |

**Figure A3.2** Nomenclature used to specify allowable operands.

A later section explains how a memory address can be computed. For now, it is sufficient to understand that we will use the terminology from Figure A3.2 to explain instructions. As an example, consider the *mov* instruction, which copies a data item specified by a *target* operand into the location specified by a *source* operand. Figure A3.3 uses the nomenclature in Figure A3.2 to list the allowable operand combinations for *mov*.