```
strcpy(str1, "abc");
strcpy(str2, "def");
strcat(str1, str2);     /* str1 now contains "abcdef" */
```

As with `strcpy`, the value returned by `strcat` is normally discarded. The following example shows how the return value might be used:

```
strcpy(str1, "abc");
strcpy(str2, "def");
strcat(str1, strcat(str2, "ghi"));
  /* str1 now contains "abcdefghi"; str2 contains "defghi" */
```

The effect of the call `strcat(str1, str2)` is undefined if the array pointed to by `str1` isn't long enough to accommodate the additional characters from `str2`. Consider the following example:

```
char str1[6] = "abc";

strcat(str1, "def");    /*** WRONG ***/
```

`strcat` will attempt to add the characters `d`, `e`, `f`, and `\0` to the end of the string already stored in `str1`. Unfortunately, `str1` is limited to six characters, causing `strcat` to write past the end of the array.

strncat function ➤23.6

The `strncat` function is a safer but slower version of `strcat`. Like `strncpy`, it has a third argument that limits the number of characters it will copy. Here's what a call might look like:

```
strncat(str1, str2, sizeof(str1) - strlen(str1) - 1);
```

`strncat` will terminate `str1` with a null character, which isn't included in the third argument (the number of characters to be copied). In the example, the third argument calculates the amount of space remaining in `str1` (given by the expression `sizeof(str1) - strlen(str1)`) and then subtracts 1 to ensure that there will be room for the null character.

## The `strcmp` (String Comparison) Function

The `strcmp` function has the following prototype:

```
int strcmp(const char *s1, const char *s2);
```

`strcmp` compares the strings `s1` and `s2`, returning a value less than, equal to, or greater than 0, depending on whether `s1` is less than, equal to, or greater than `s2`. For example, to see if `str1` is less than `str2`, we'd write

```
if (strcmp(str1, str2) < 0)     /* is str1 < str2? */
  ...
```