

```

"-----\n");

    errno = 0;
    printf("strtod      %-12g", strtod(argv[1], &ptr));
    CHK_VALID;

    errno = 0;
    printf("strtoul    %-12ld", strtoul(argv[1], &ptr, 10));
    CHK_VALID;

    return 0;
}

```

If 3000000000 is the command-line argument, the output of the program might have the following appearance:

Function	Return Value
atof	3e+09
atoi	2147483647
atol	2147483647

Function	Return Value	Valid?	String Consumed?
strtod	3e+09	Yes	Yes
strtoul	2147483647	No	Yes
strtoul	3000000000	Yes	Yes

On many machines, the number 3000000000 is too large to represent as a long integer, although it's valid as an unsigned long integer. The `atoi` and `atol` functions had no way to indicate that the number represented by their argument was out of range. In the output shown, they returned 2147483647 (the largest long integer), but the C standard doesn't guarantee this behavior. The `strtoul` function performed the conversion correctly; `strtoul` returned 2147483647 (the standard requires it to return the largest long integer) and stored `ERANGE` in `errno`.

If 123.456 is the command-line argument, the output will be

Function	Return Value
atof	123.456
atoi	123
atol	123

Function	Return Value	Valid?	String Consumed?
strtod	123.456	Yes	Yes
strtoul	123	Yes	No
strtoul	123	Yes	No