Scope Example

This simple program shows how the C language handles scope.

```
/*
 * this is a do-nothing program that demonstrates the
 * scope rules of C.
 */
#include <stdio.h>
#include <stdlib.h>

/*
 * forward declarations
 */
void g(int);
void h(void);

/* the top-level definition */
int variable = 1;

/*
 * the main routine
 */
int main(void)
{
      /* scope is function main */
      int variable = 2;

      printf("main(%d):variable = %d\n", __LINE__, variable);

      /* now an inner block */
      {
            /* scope is the rest of this block */
            int variable = 3;

            printf("main(%d):variable = %d\n", __LINE__, variable);

            /* now an even more inner block */
            {
                  /* scope is this block */
                  extern int variable;

                  printf("main(%d):variable = %d\n", __LINE__,
                                                          variable);
            }
            /* end innermost block */

            printf("main(%d):variable = %d\n", __LINE__, variable);
      }
      /* end inner block -- back to main block */

      printf("main(%d):variable = %d\n", __LINE__, variable);

      /* now let's show how functions interact with scope */
```

```
        g(variable);

        /* bye! */
        return(EXIT_SUCCESS);
}

/*
 * now notice "variable" is a parameter
 * so it (effectively) overrides references to the
 * top-level variable)
 */
void g(int variable)
{
        printf("g(%d):variable = %d\n", __LINE__, variable);
        /* now let's call another function */
        h();
}

/*
 * this function has no declarations, so
 * let's see what it prints
 */
void h(void)
{
        printf("h(%d):variable = %d\n", __LINE__, variable);
}
```