

Function & Variables (1B)

Copyright (c) 2009-2016 Young W. Lim.

Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".

f1.c

```
#include <stdio.h>

int main(void)
{ // block 1
  int a = 10;
  printf("blk1: a=%d\n", a);
  // printf("blk1: b=%d\n", b); XXX
  // printf("blk1: c=%d\n", c); XXX

  { // block 2
    int b = 20;
    printf("blk2: a=%d\n", a);
    printf("blk2: b=%d\n", b);
    // printf("blk2: c=%d\n", c); XXX
    { // block 3
      int c = 30;
      printf("blk3: a=%d\n", a);
      printf("blk3: b=%d\n", b);
      printf("blk3: c=%d\n", c);
    }
  }

  { // block 4
    int b = 22;
    printf("blk4: a=%d\n", a);
    printf("blk4: b=%d\n", b);
    // printf("blk4: c=%d\n", c); XXX
  }
}
```

```
&a= 0xbfff505c a= 100
&x= 0xbfff5040 x= 100
&x= 0xbfff5040 x= 200
&a= 0xbfff505c a= 200
```

f2.c

```
#include <stdio.h>

int func(int x) {
    printf("&x= %p x= %d \n", &x, x);
    x *= 2;
    printf("&x= %p x= %d \n", &x, x);
    return x;
}

void main(void) {
    int a = 100;

    printf("&a= %p a= %d \n", &a, a);

    a = func( a );

    printf("&a= %p a= %d \n", &a, a);
}
```

```
&a= 0xbfff505c a= 100
&x= 0xbfff5040 x= 100
&x= 0xbfff5040 x= 200
&a= 0xbfff505c a= 200
```

f3.c

```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>

void func( void ) {
    static int ii = 0;
    ii++;
    printf("ii=%d \n", ii);
}

int main(void)
{
    int i;

    for (i=0; i<10; ++i) {
        func();
    }
}
```

f2.c

```
#include <stdio.h>

int func(int x) {
    printf("&x= %p x= %d \n", &x, x);
    x *= 2;
    printf("&x= %p x= %d \n", &x, x);
    return x;
}

void main(void) {
    int a = 100;

    printf("&a= %p a= %d \n", &a, a);

    a = func( a );

    printf("&a= %p a= %d \n", &a, a);
}
```

```
&a= 0xbfff505c a= 100
&x= 0xbfff5040 x= 100
&x= 0xbfff5040 x= 200
&a= 0xbfff505c a= 200
```

f3.c

```
#include <stdio.h>
#include <stdarg.h>

int func(int n, ...) {
    va_list vl;

    va_start (vl, n);

    printf("va_arg(vl, char)=%c \n", va_arg(vl, int));
    printf("va_arg(vl, char)=%c \n", va_arg(vl, int));
    printf("va_arg(vl, int)=%d \n", va_arg(vl, int));
    printf("va_arg(vl, int)=%d \n", va_arg(vl, int));
    printf("va_arg(vl, double)=%f \n", va_arg(vl, double));

    va_end(vl);
}

int main() {
    func(5, 'a', 'b', 100, 200, 3.14);
}
```

```
va_arg(vl, char)=a
va_arg(vl, char)=b
va_arg(vl, int)=100
va_arg(vl, int)=200
va_arg(vl, double)=3.140000
```