

一个典型实例——两数互换

程序 1：基本类型变量作函数参数

```
int main()  
{  
    int a, b;  
    a = 5;  
    b = 9;  
    Swap(a, b);  
    printf("a=%d,b=%d", a, b);  
    return 0;  
}
```

```
void Swap(int x, int y)  
{  
    int temp;  
    temp = x;  
    x = y;  
    y = temp;  
}
```

实参

形参

Not Work! Why?

程序 2：指针类型变量作函数参数

```
int main()  
{  
    int a, b;  
    a = 5;  
    b = 9;  
    Swap(&a, &b);  
    printf("a=%d,b=%d", a, b);  
    return 0;  
}
```

```
void Swap(int *x, int *y)  
{  
    int temp;  
    temp = *x;  
    *x = *y;  
    *y = temp;  
}
```

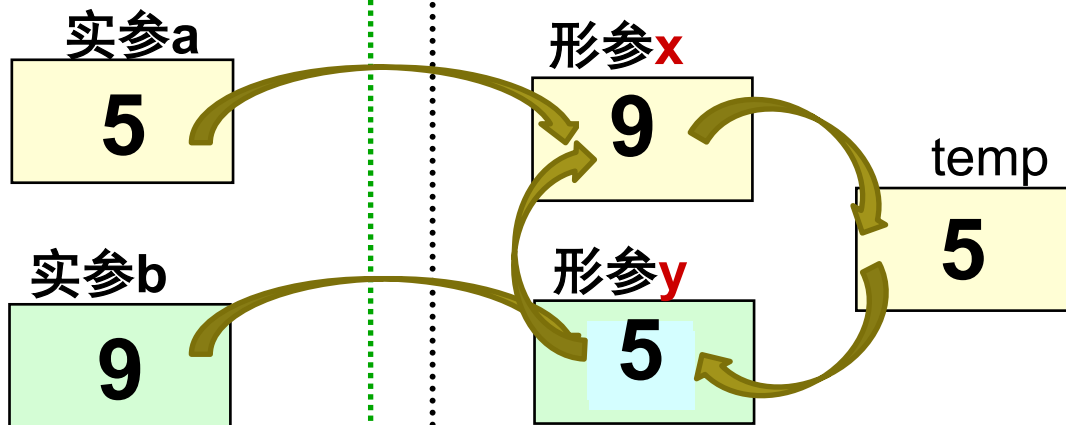


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```
int main()  
{  
    int a = 5, b = 9;  
    Swap(a, b);  
    printf("a=%d,b=%d", a, b);  
    return 0;  
}
```

```
void Swap(int x, int y)  
{  
    int temp;  
    temp = x;  
    x = y;  
    y = temp;  
}
```

Call by **value**



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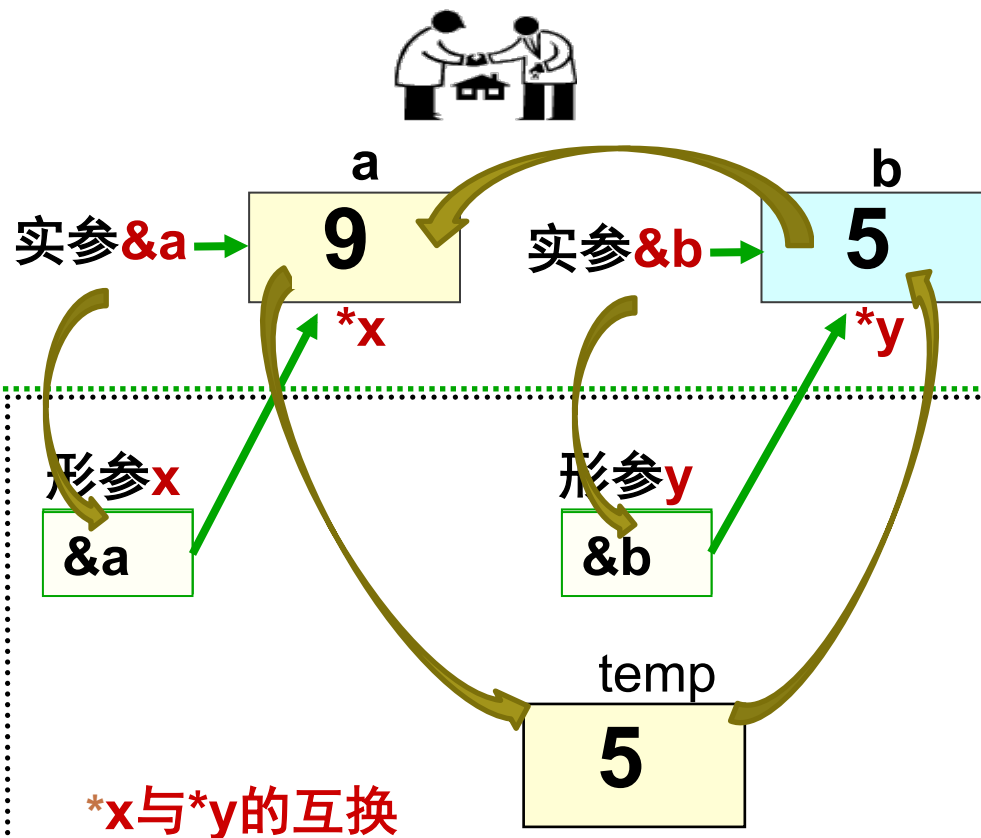
```
int main()
{
    int a = 5, b = 9;

    Swap(&a, &b);

    printf("a=%d,b=%d", a, b);
    return 0;
}
```

```
void Swap(int *x, int *y)
{
    int temp;
    temp = *x;
    *x = *y;
    *y = temp;
}
```

Simulating call by reference



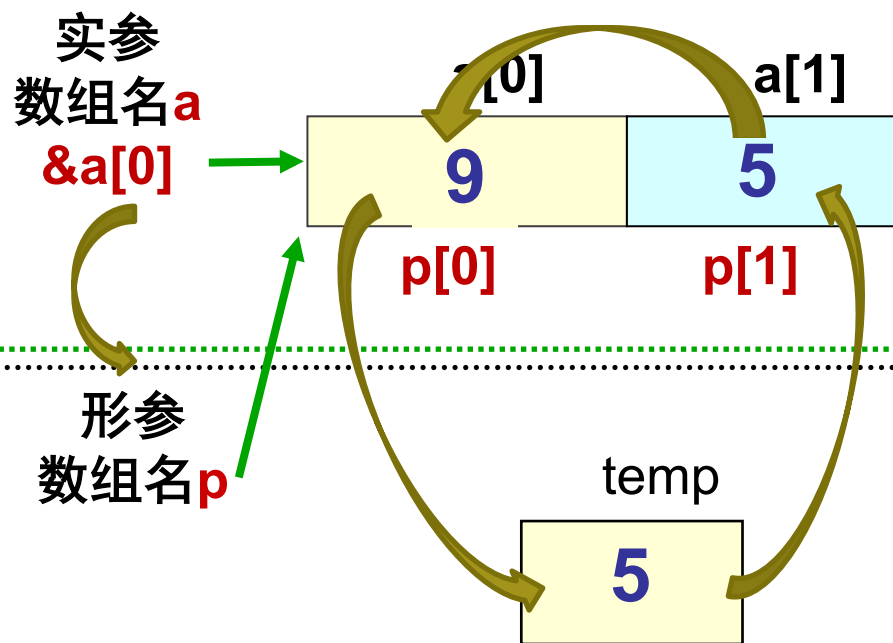
一个典型实例——两数互换

```
int main()
{
    int a[2] = {5, 9};

    Swap(a);

    printf("%d,%d", a[0],
a[1]);
    return 0;
}
```

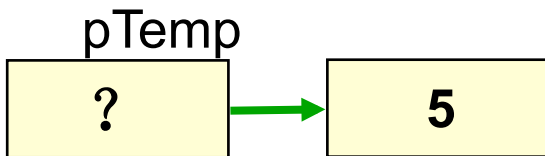
```
void Swap(int p[])
{
    int temp;
    temp = p[0];
    p[0] = p[1];
    p[1] = temp;
}
```



Errors

```
void Swap(int *x, int *y)
{
    int *pTemp;

    *pTemp = *x;
    *x = *y;
    *y = *pTemp;
}
```



不能借助一个未初始化的
指针变量进行两数互换

```
void Swap(int *x, int *y)
{
    int *pTemp;

    pTemp = x;
    x = y;
    y = pTemp;
}
```

借助指针pTemp交换的
是地址值(即x和y的指向)
不是指针指向的内容

