



THE COPY CONSTRUCTOR

Copying or duplicating an object



OBJECT COPY

- To copy an object means to duplicate or reproduce it. The original and copy
 - have the same data
 - are, in some sense, equal
 - are indistinguishable
 - are independent
- Copying an object means making a new object, which is a constructor task
- Operations triggering a copy operation
 - Assignment
 - Pass by value (aka pass by copy)
 - Return by value
- Programs require these operations
 - Compiler auto-generates
 - Assignment operator
 - Copy constructor

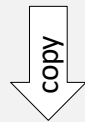
SIMPLE OBJECT COPY

THE AUTOMATIC COPY CONSTRUCTOR

person
- name : string
- weight : int
- height : double

```
string name;  
int    weight;  
double height;
```

Dilbert
175
5.75



Dilbert
175
5.75

```
person::person(person& p)  
{  
    memcpy(this, &p, sizeof(person));  
}
```

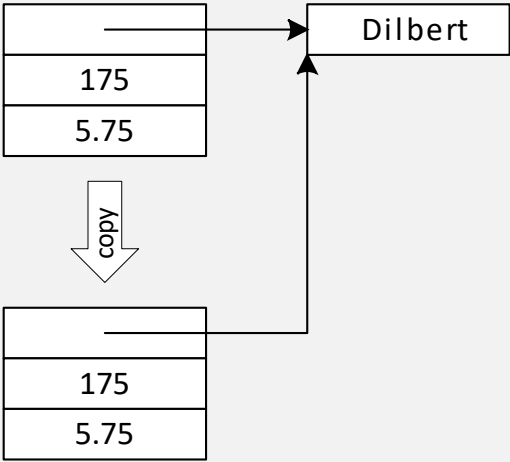
```
person::person(person& p)  
{  
    name = p.name;  
    weight = p.weight;  
    height = p.height;  
}
```



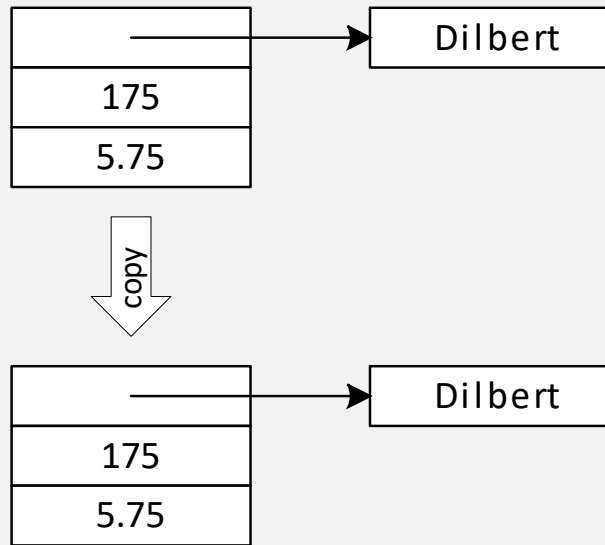
COPY ERROR

person
- name : string*
- weight : int
- height : double

```
string* name;  
int weight;  
double height;
```



OVERRIDING THE COPY CONSTRUCTOR COPYING A COMPLEX OBJECT



```
person::person(person& p)
{
    name = new string(*p.name);
    weight = p.weight;
    height = p.height;
}
```

```
person::person(person& p)
{
    memcpy(this, &p, sizeof(person));
    name = new string(*p.name);
}
```