# BUILDING INHERITANCE

Passing data from subclass to superclass constructors

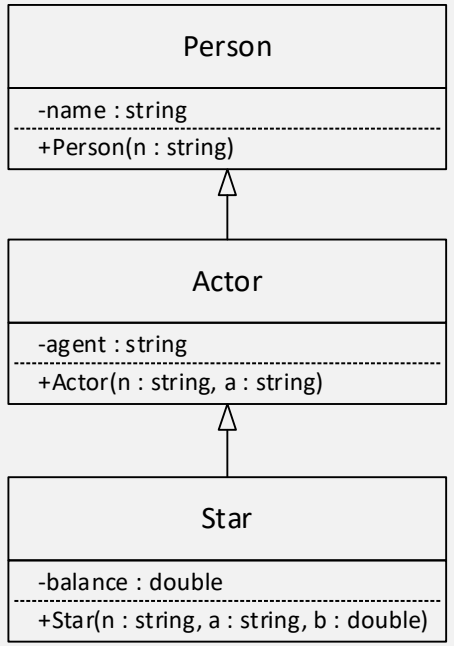
Delroy A. Brinkerhoff

# IMPLEMENTING INHERITANCE

```
class Person
{
};

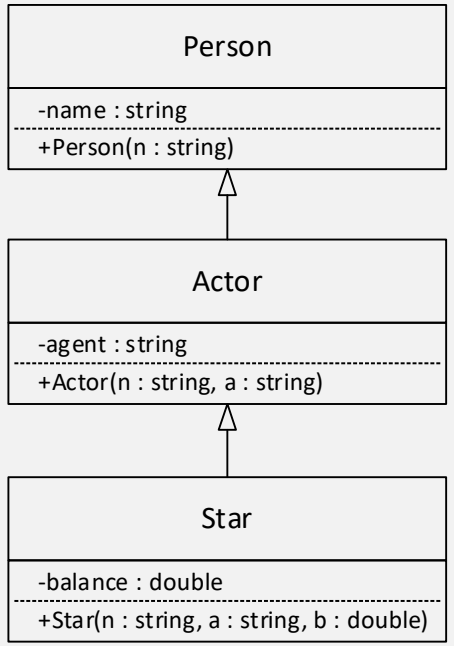
class Actor : public Person
{
};

class Start : public Actor
{
};
```



# INSTANTIATING A SUBCLASS

- Instantiating an object from Star also creates objects from Actor and Person
- Constructors run for all classes
  - Default constructors, if available, run automatically
  - Parameterized constructors are explicitly called
    - Star constructor calls Actor constructor
    - Actor constructor calls Person constructor

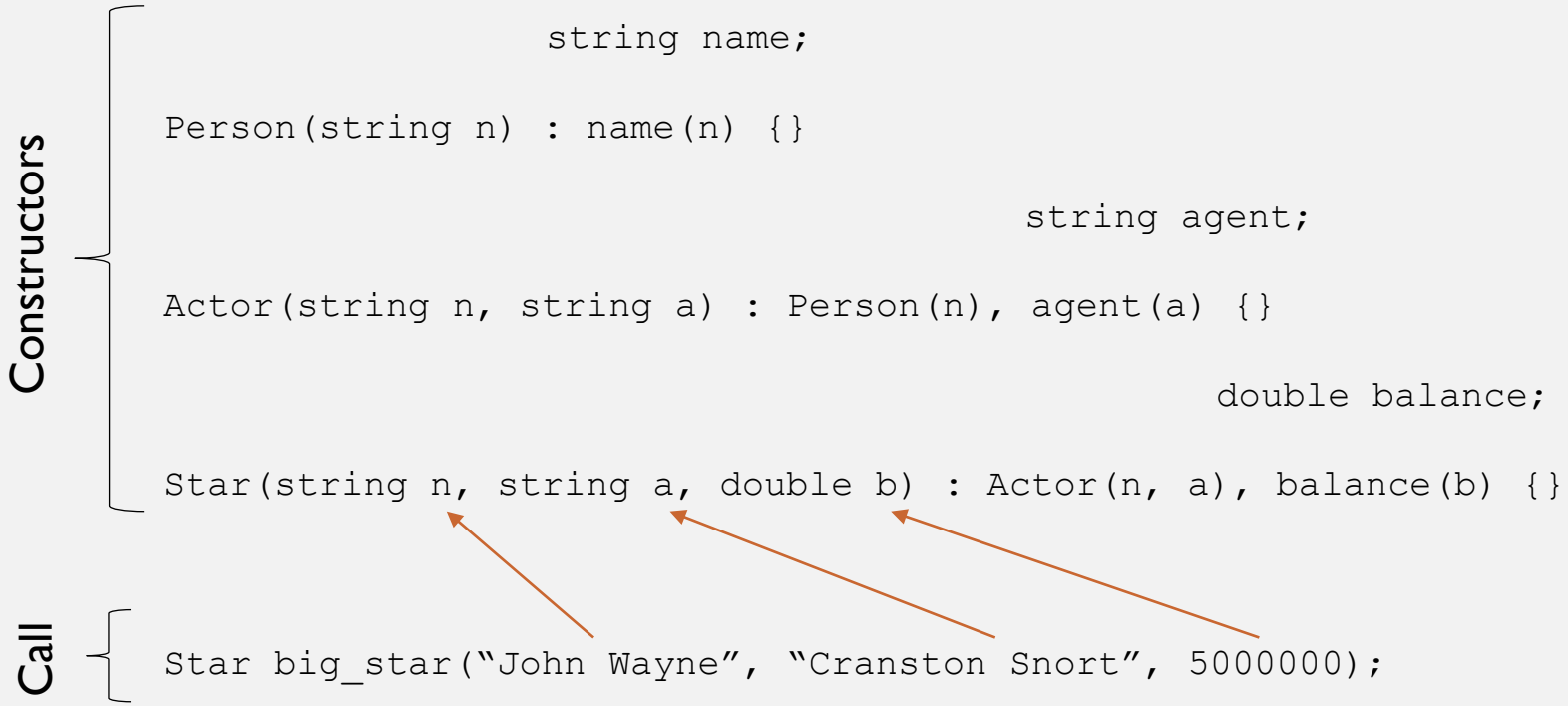


# CONSTRUCTOR CALL CHAINS

- `Person(string n) : name(n) {}`
- `Actor(string n, string a) : Person(n), agent(a) {}`
- ```
  Star(string n, string a, double b) :
       Actor(n, a), balance(b) {}
  ```

- `Star big_star("John Wayne", "Cranston Snort", 5000000);`
  ```

# DATA FLOW


Constructors
string name;
Person(string n) : name(n) {}
string agent;
Actor(string n, string a) : Person(n), agent(a) {}
double balance;
Star(string n, string a, double b) : Actor(n, a), balance(b) {}
Call
Star big_star("John Wayne", "Cranston Snort", 5000000);

# DATA FLOW

Constructors

```
                    string name;

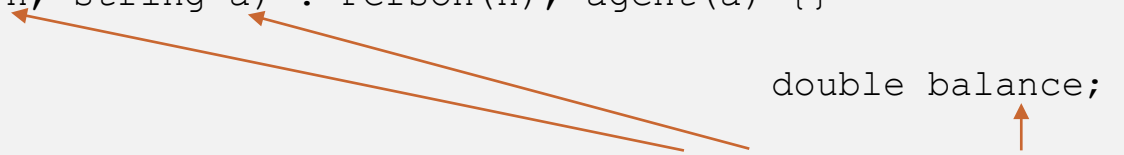
Person(string n) : name(n) {}

                                        string agent;

Actor(string n, string a) : Person(n), agent(a) {}

                                                  double balance;

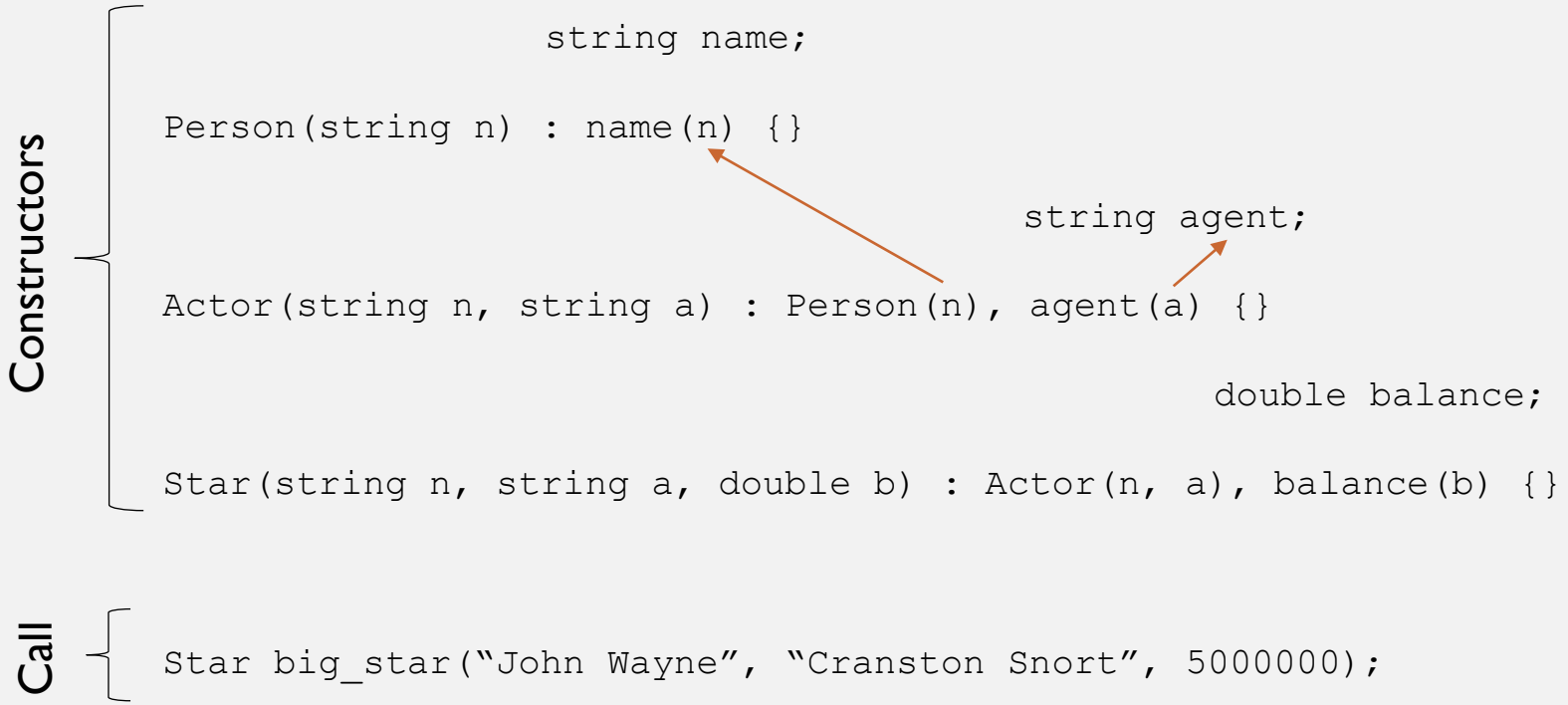
Star(string n, string a, double b) : Actor(n, a), balance(b) {}
```



Call

```
Star big_star("John Wayne", "Cranston Snort", 5000000);
```

# DATA FLOW


Constructors
string name;
Person(string n) : name(n) {}
string agent;
Actor(string n, string a) : Person(n), agent(a) {}
double balance;
Star(string n, string a, double b) : Actor(n, a), balance(b) {}
Call
Star big_star("John Wayne", "Cranston Snort", 5000000);

# DATA FLOW

Constructors

```
                    string name;

Person(string n) : name(n) {}

                                        string agent;

Actor(string n, string a) : Person(n), agent(a) {}

                                                  double balance;

Star(string n, string a, double b) : Actor(n, a), balance(b) {}
```

Call

```
Star big_star("John Wayne", "Cranston Snort", 5000000);
```