Digital World (2018)

Week 8, S3: Inheritance

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Refresher: special methods

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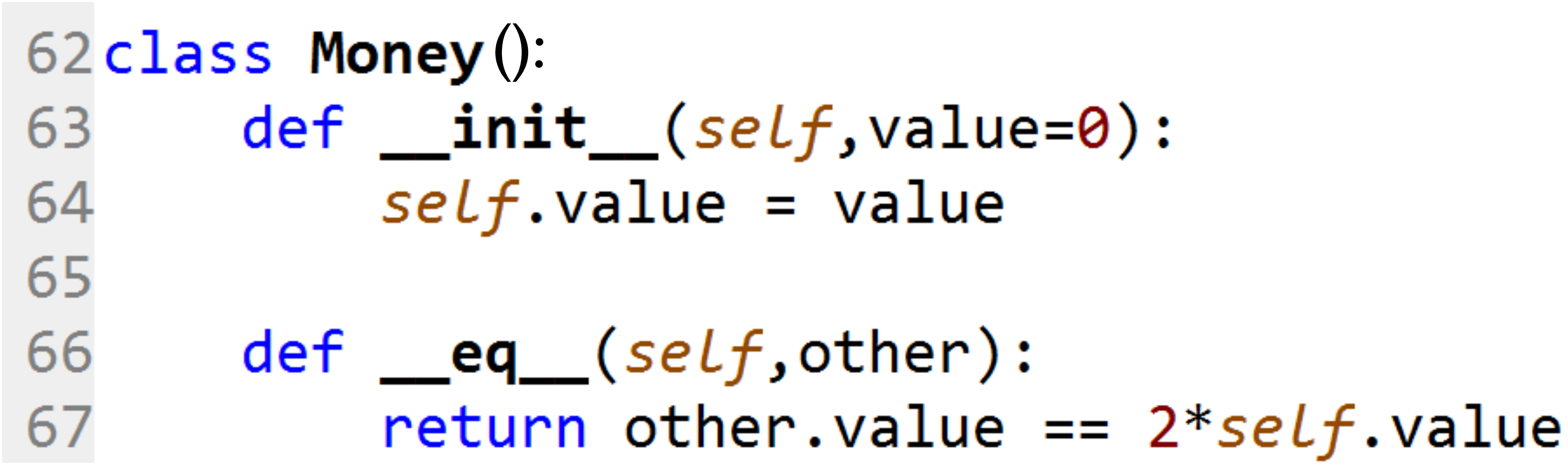

```
class Money():
    def __init__(self,value=0):
        self.value = value

    def __eq__(self,other):
        return other.value == 2*self.value
```

Which of the following gives **True**?

A. Money(100) == Money(200)
B. Money(200) == Money(100)
C. Money(100) == Money(100)
D. A & B
E. A, B and C

Refresher: **property** function

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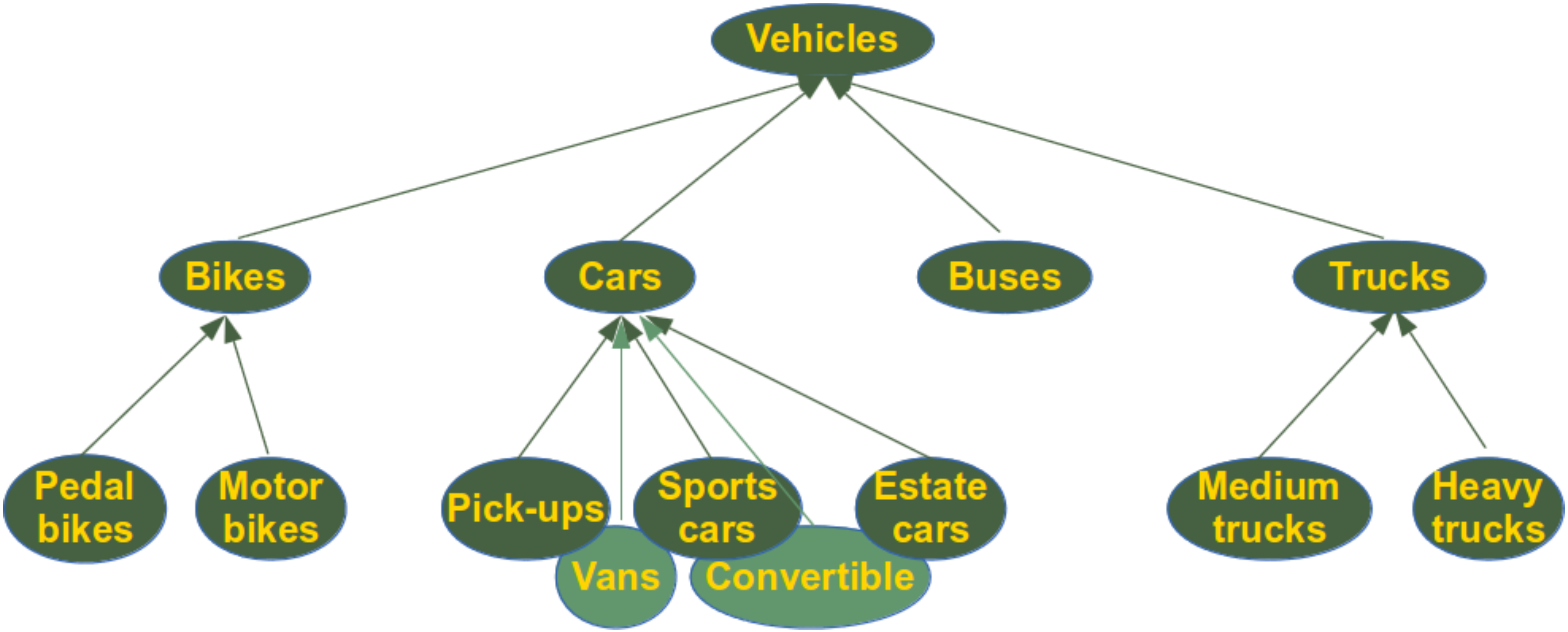
```
class Person():
    def __init__(self, name="", hair="brown"):
        self.name = name
        self.hair = hair

    def get_name(self):
        return self._name

    def set_name(self,new_name):
        self._name = new_name

    def get_hair(self):
        return self._hair

    def set_hair(self, new_hair):
        if new_hair in ["brown", "grey", "black", "blonde"]:
            self._hair = new_hair

    name = property(get_name, set_name)
    hair = property(get_hair, set_hair)

p1 = Person("Chris", "brown")
p2 = Person("John", "blonde")
p2.name = p1.name * 3
p2.hair = "chickenfloss"
print(p2.name, p2.hair)
```

what's printed?

Defining a RoadVehicle class

Hierarchy of vehicles

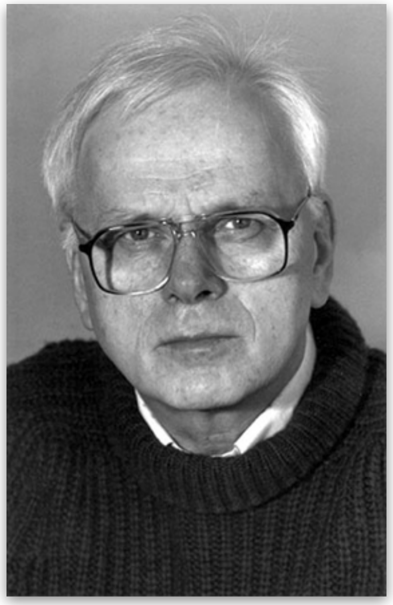


Today: a brief introduction to inheritance

- classes can inherit from other classes

- if class A inherits from class B, then objects of type A also acquire all the properties and behaviours of B

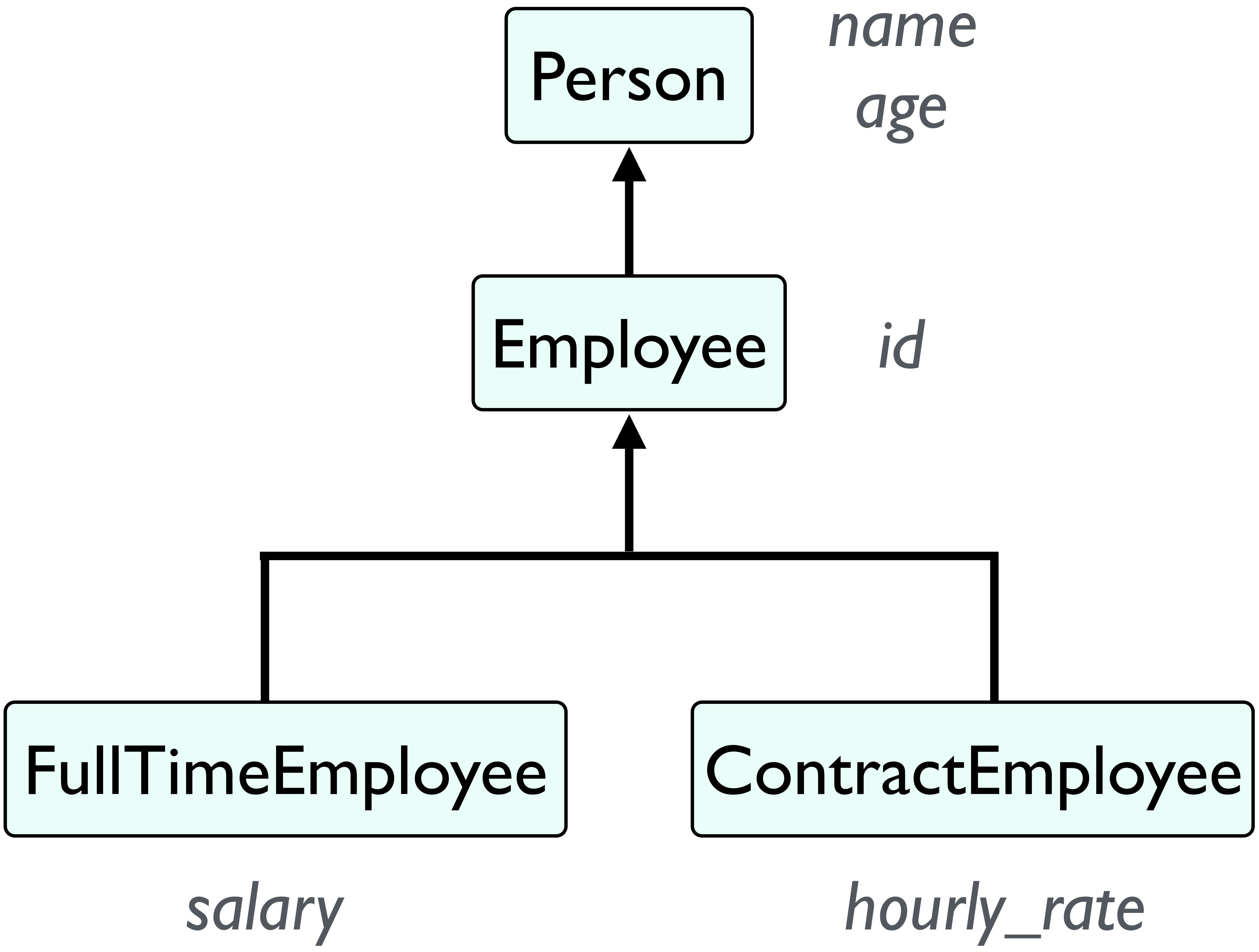
- why? promotes code re-use and allows one to build upon existing classes



K. Nygaard

O.-J. Dahl

Employees are people



Inheriting and overriding methods

- in our example, attributes (name, age, …) are inherited by the subclasses

- some methods are inherited too (e.g. __str__)

- but note that __init__ is overridden

- tutorial: https://www.python-course.eu/python3_inheritance.php

Summary

- inheritance allows classes to acquire the attributes and methods of other classes

- this practice promotes code re-use and makes it simple to extend existing classes

- classes can override the methods they inherit to extend or replace some functionality