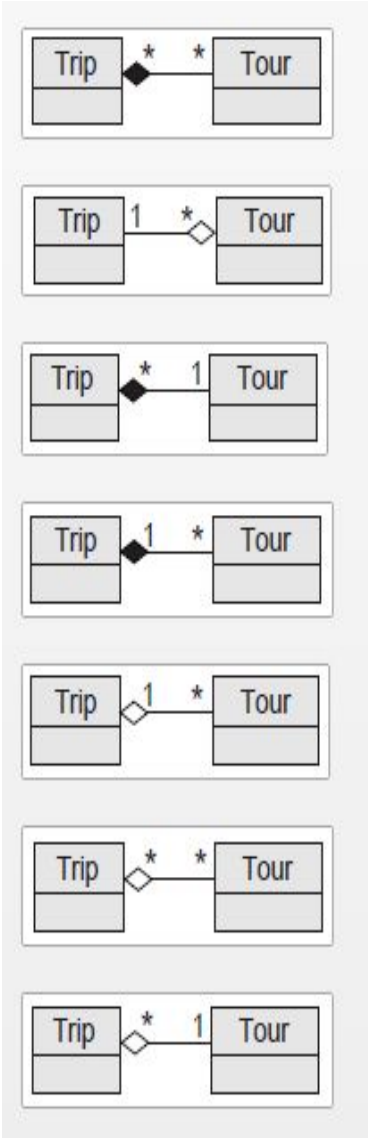
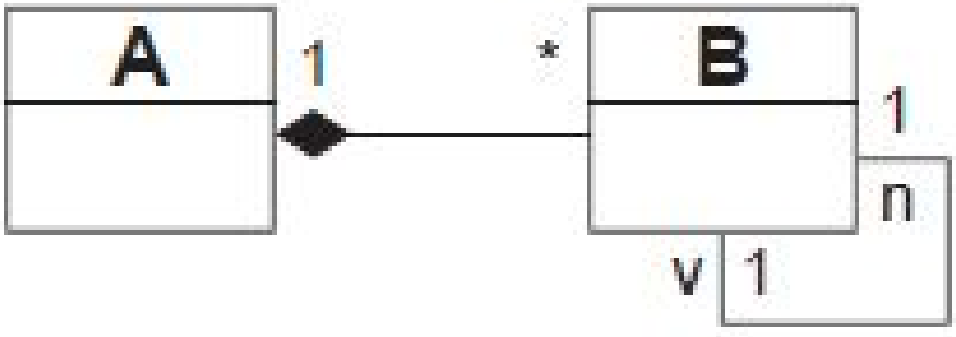
Métodos de Desenvolvimento de Software
Software Development Methods
(MDS)
2016/2017

Object Diagrams

Some Exercises

A trip might comprise of multiple tours, one tour can be included in several trips.





Which are true?

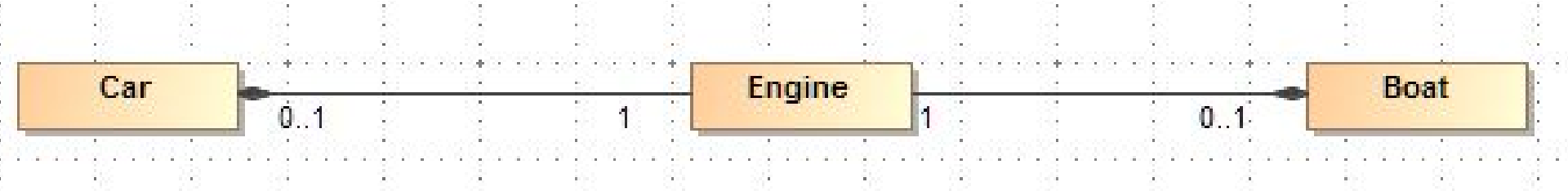
- One object of B is associated with two other objects of B.
- one object of B is contained in exactly one object of A.
- The diamond near A is called composition.
- One object of A may be associated with one object of B.
- If an instance of B is deleted, all contained instances of A are deleted as well.

Class Attributes - visibility

/	Derived Attributes
#	Protected. Only Object instances of the class and its subclasses can see.
+	Public . All objects within the system can see.
-	Private. Only objects of the implemented class can see
~	Only instances of classes within the same class can see.

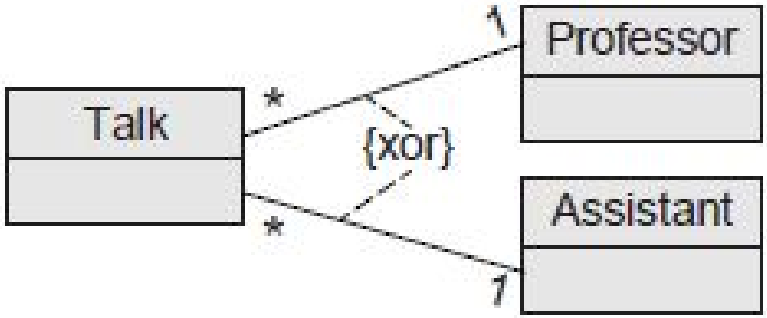
More on Composition

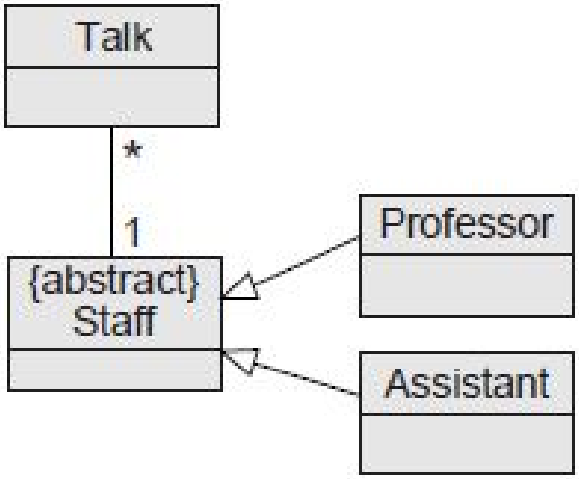
- When represented like the following it represents that an Engine either is part of a car or a boat (but not both at the same time). During the lifetime of the system it can be interchanged.



Other ways to impose constraints over associations

- Each talk is done by a professor or an assistant





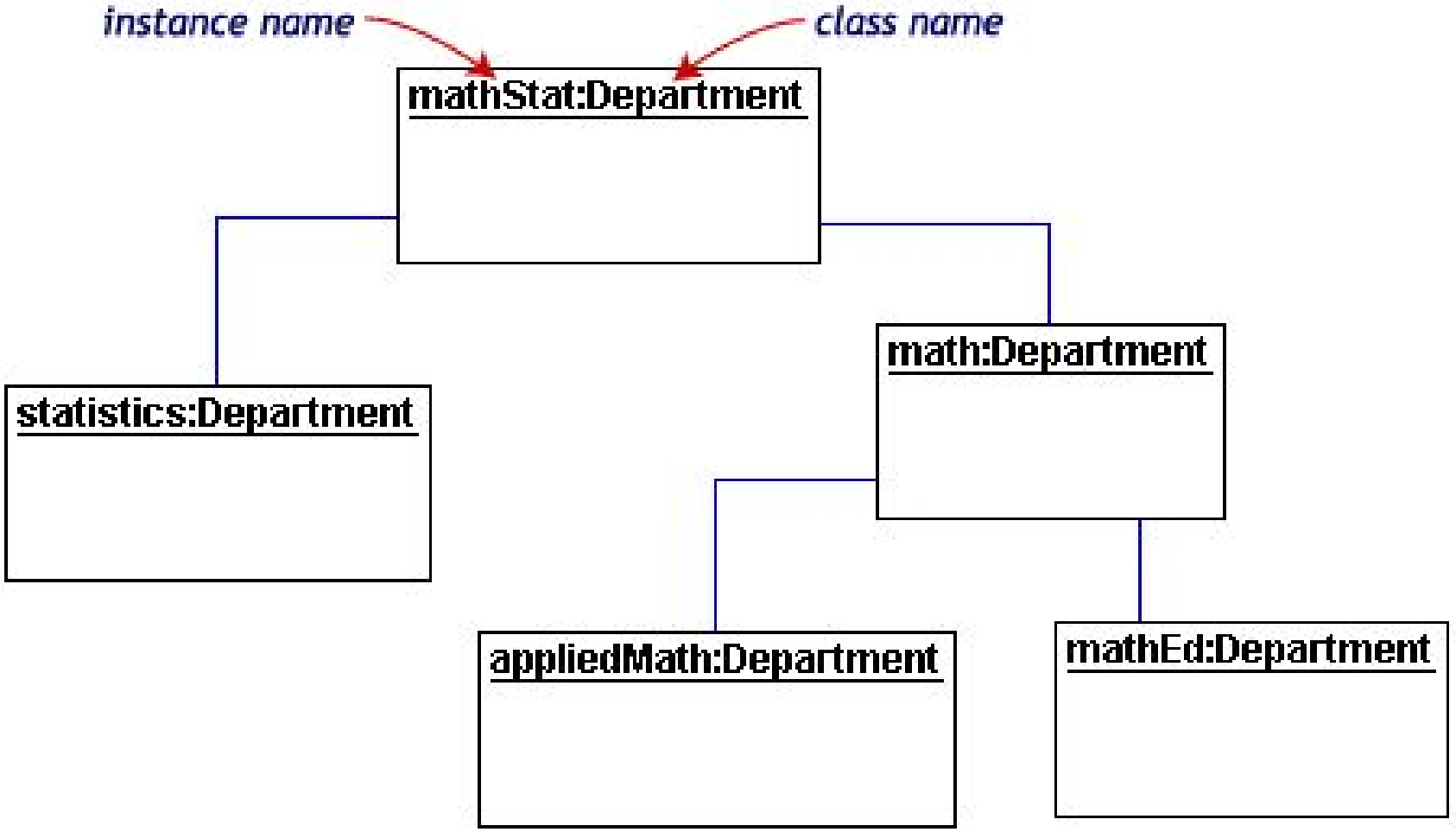
What is an Object?

- Discrete Entity with well defined borders that encapsulates state and behavior; Class Instance
  - Identity
  - State
  - Behavior

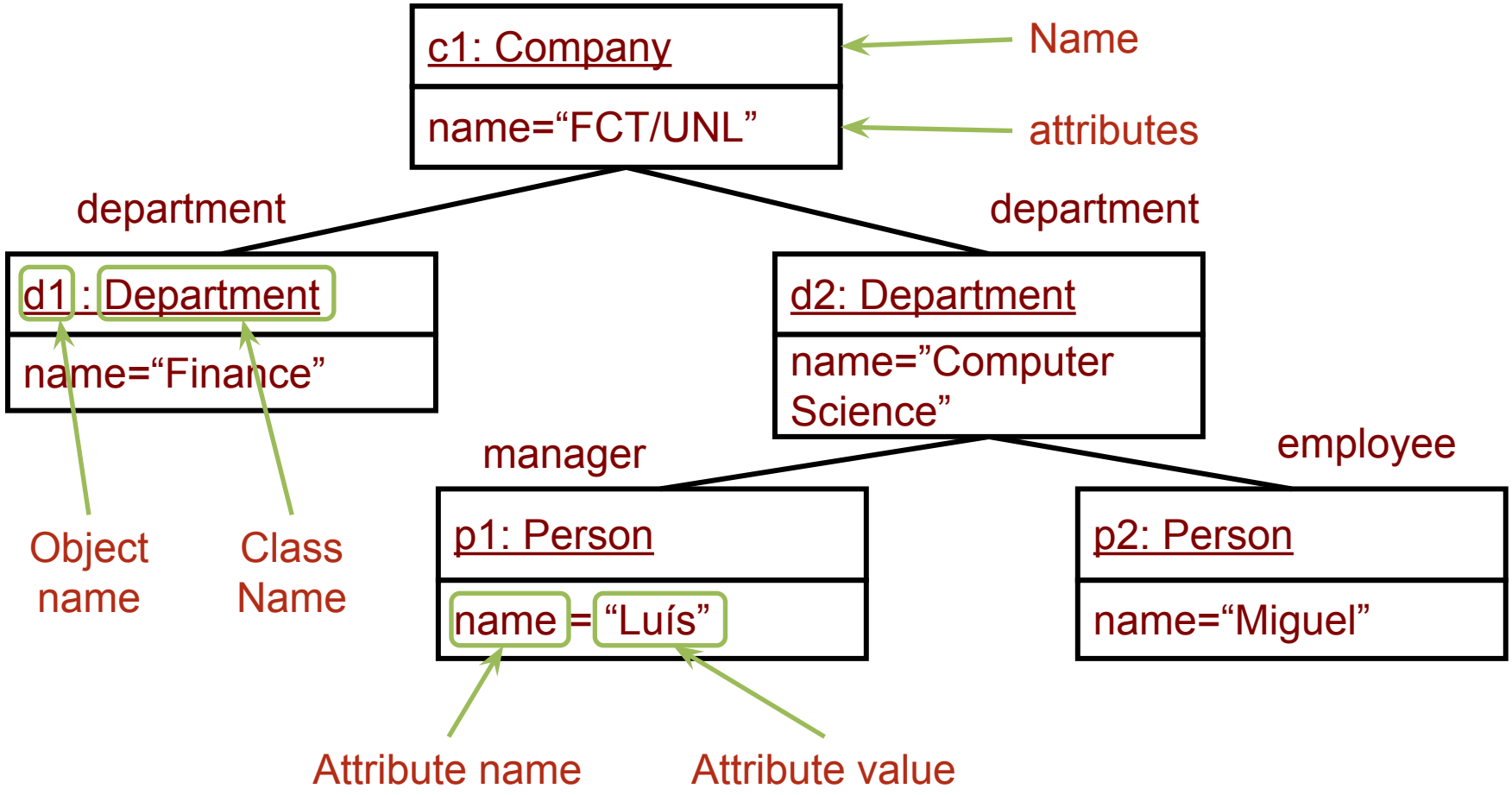
Object Diagrams

- Object Diagrams describe the static structure of the system at a given time
- While the class diagrams describe all possibilities
- Object Diagram elements:
- **Objects**, represent particular instances of a class.
- **Links**, represent specific relationships between objects. Are association instances.

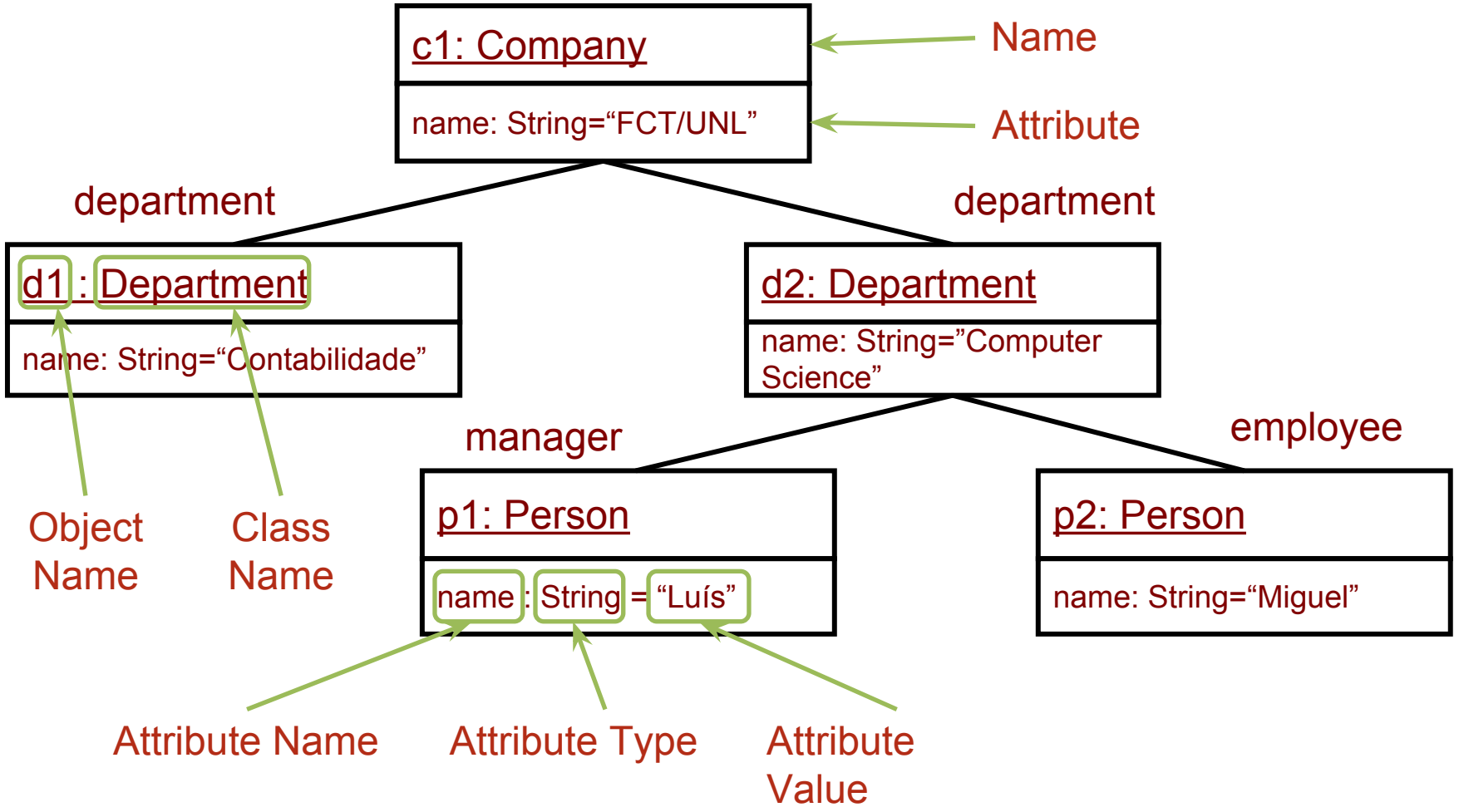
Object Diagrams



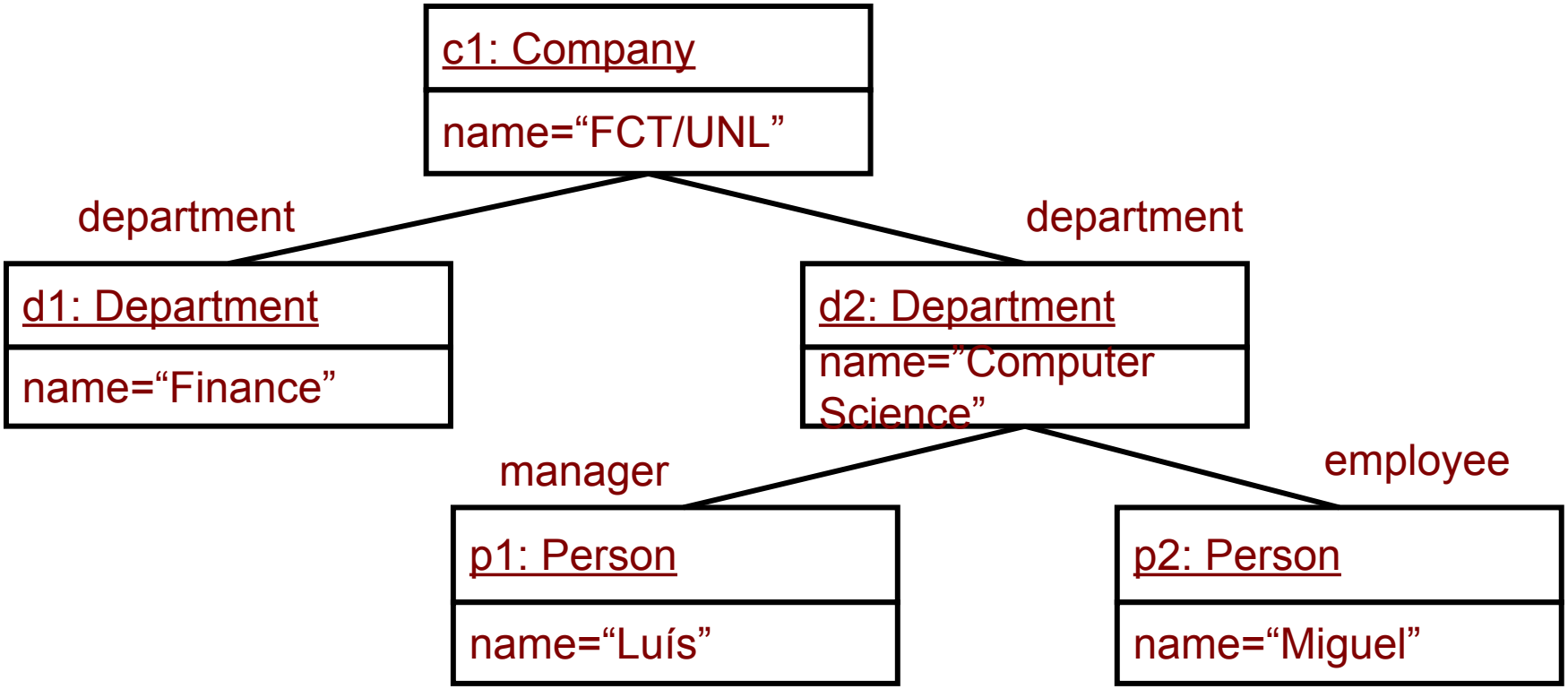
Object Diagrams: Example



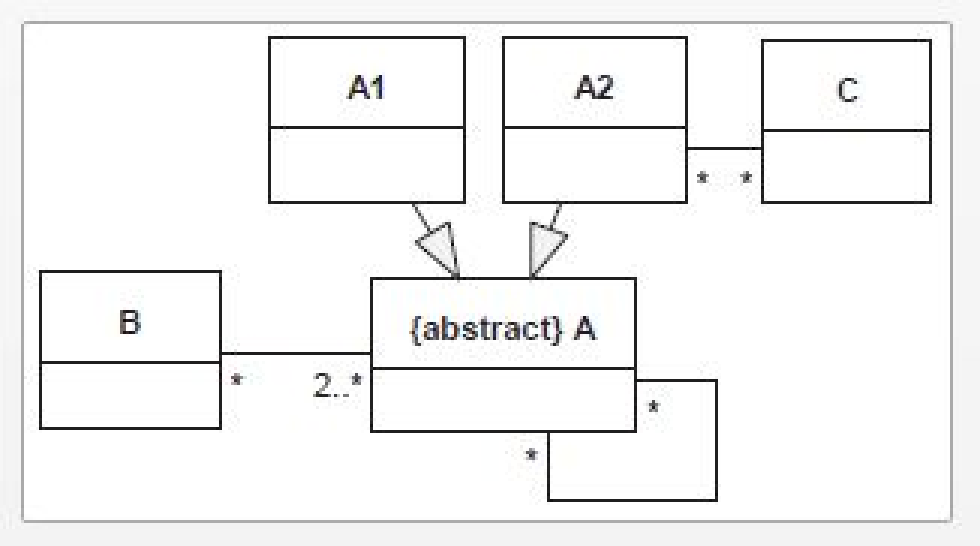
Object Diagram: Example



Object Diagram: Example



Exercise: Infer the Class Diagram it derives from?



An object of A1 can be associated with an object of B.

Each object of A1 has to be an instance of A.

One object of A1 may be associated with an object of A2.

There exist objects of class B that are not associated with objects of class A2.