SYS466
Analysis and Design

Lecture 5- Domain Modelling Patterns
School of Information and Communications Technology
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“…proven approach to solving a problem… ”

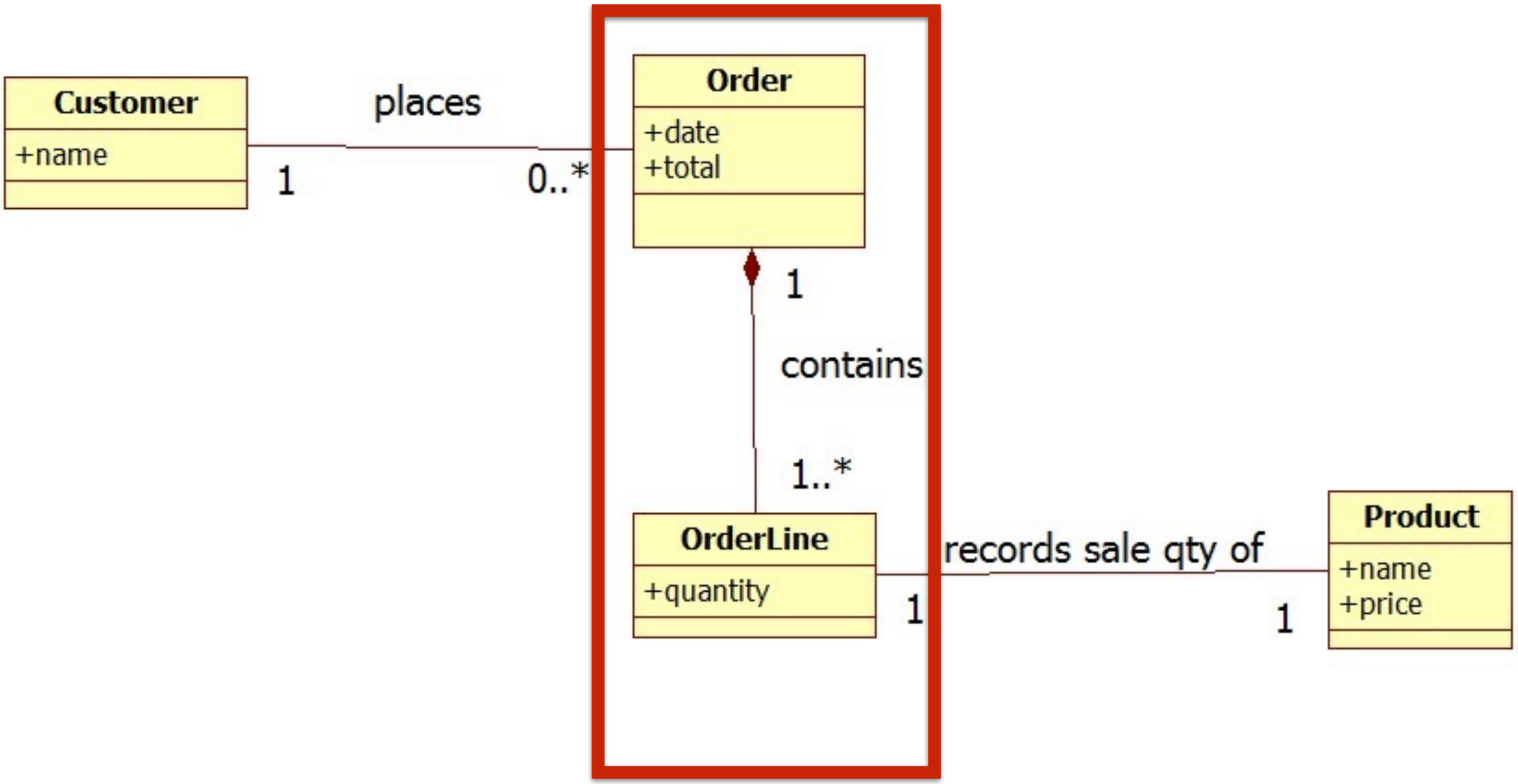
“…observed in multiple solutions…”

–pattern definition (revisited)

Case 1: Online Book Store

You are purchasing 3 different books from amazon.com—books A, B C. You are purchasing 2 copies of A, and 1 copy each of B and C. All of this is recorded as one sale for you, the customer.

- observations
  - abstractly almost identical to “product” example last class
  - the fact that it is an online purchase is not relevant to the model
  - composition model can be used as a pattern for many of the same types of problem



Case 1: A Pattern for Order Fulfillment

A composition between an order and its line items can be used to model sales with heterogeneous (different) items.

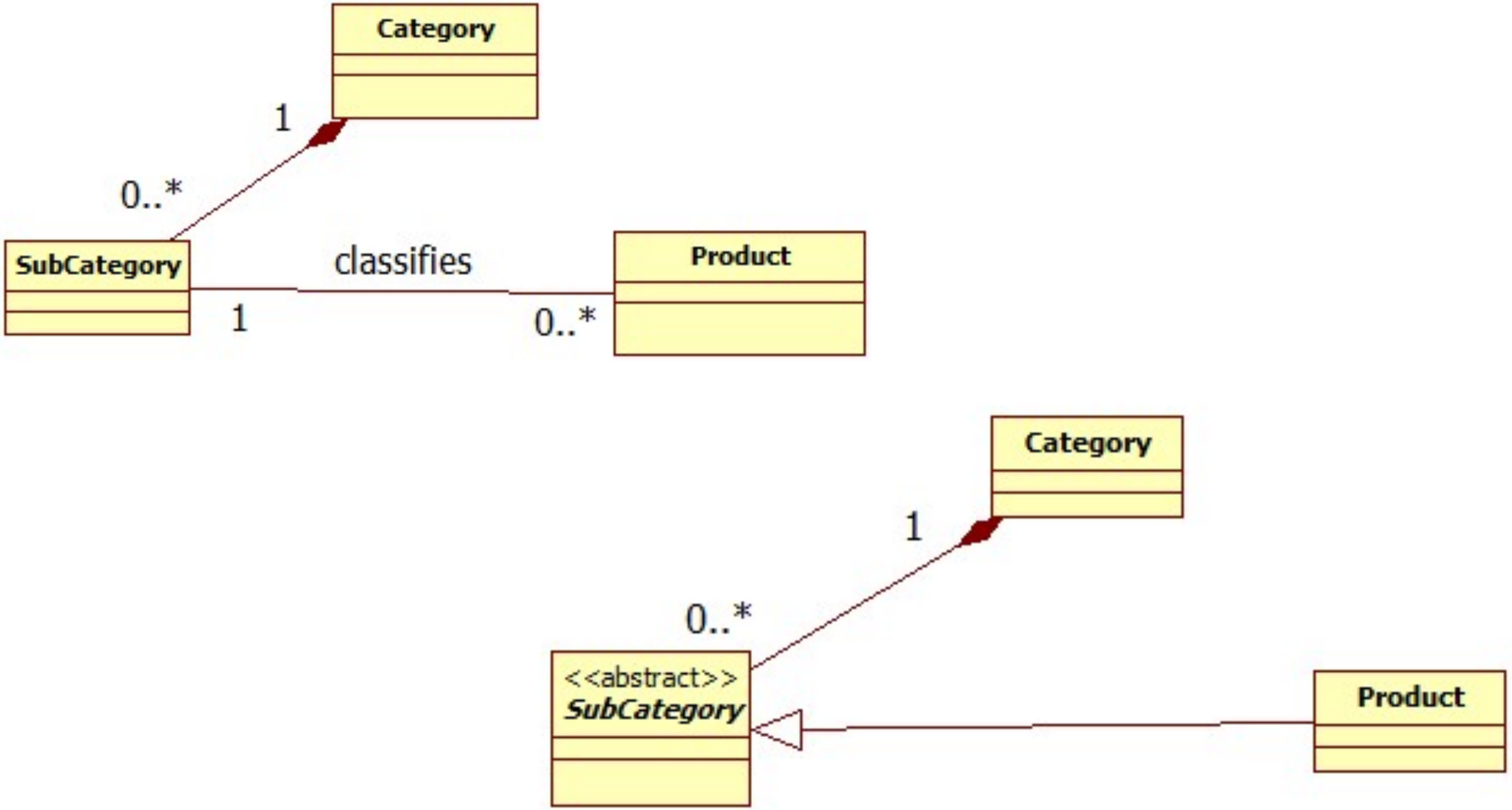
Case 2: Car Dealership

A vehicle dealership sells several makes and models of vehicles. It needs to know the make/model of each vehicle and it has a predetermined set of models for each make.

The dealership also wants to track sales by make and model within make.

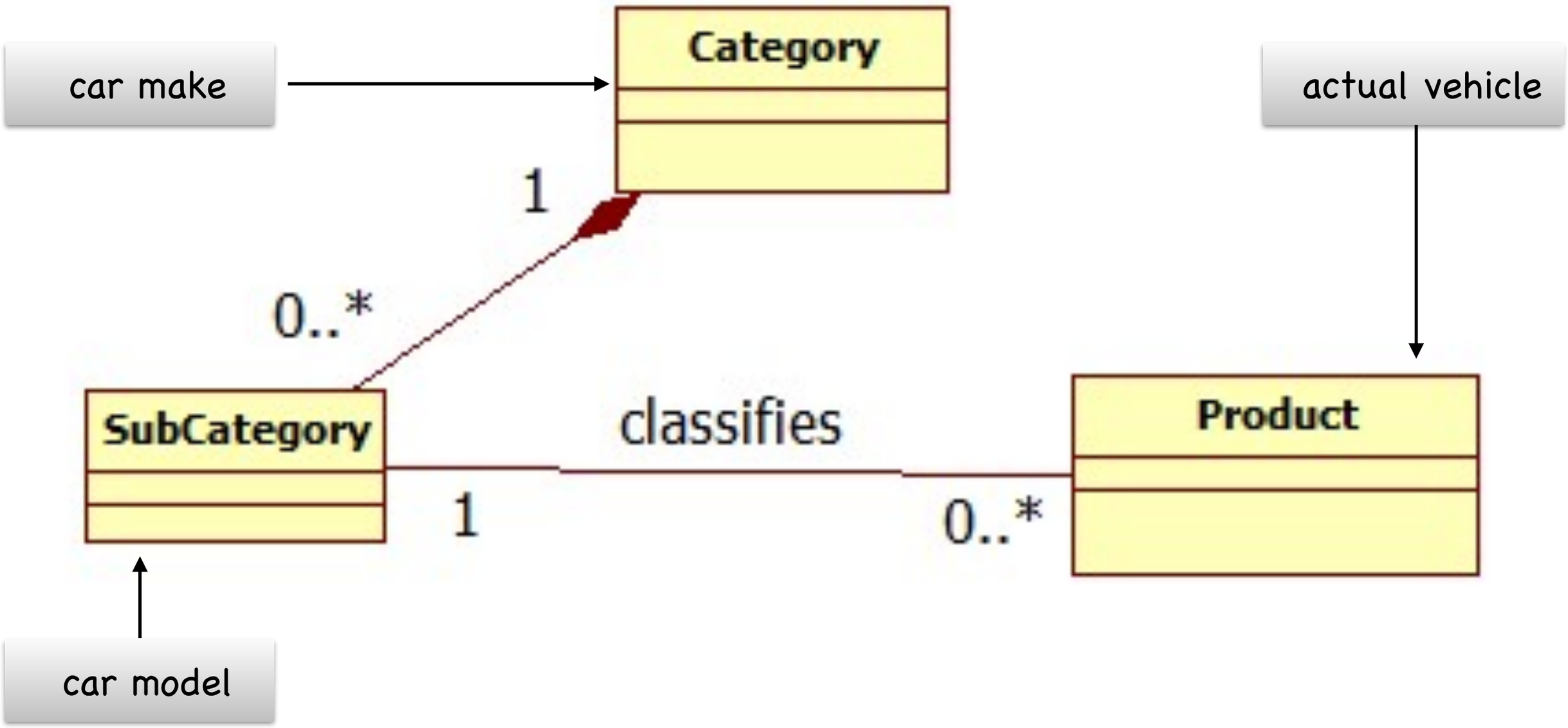
observations

- make is the “big” category, model is “little”, subcategory
- vehicle is of “big,little” category type
- system should be able to search object space by “big” or “big, little” type



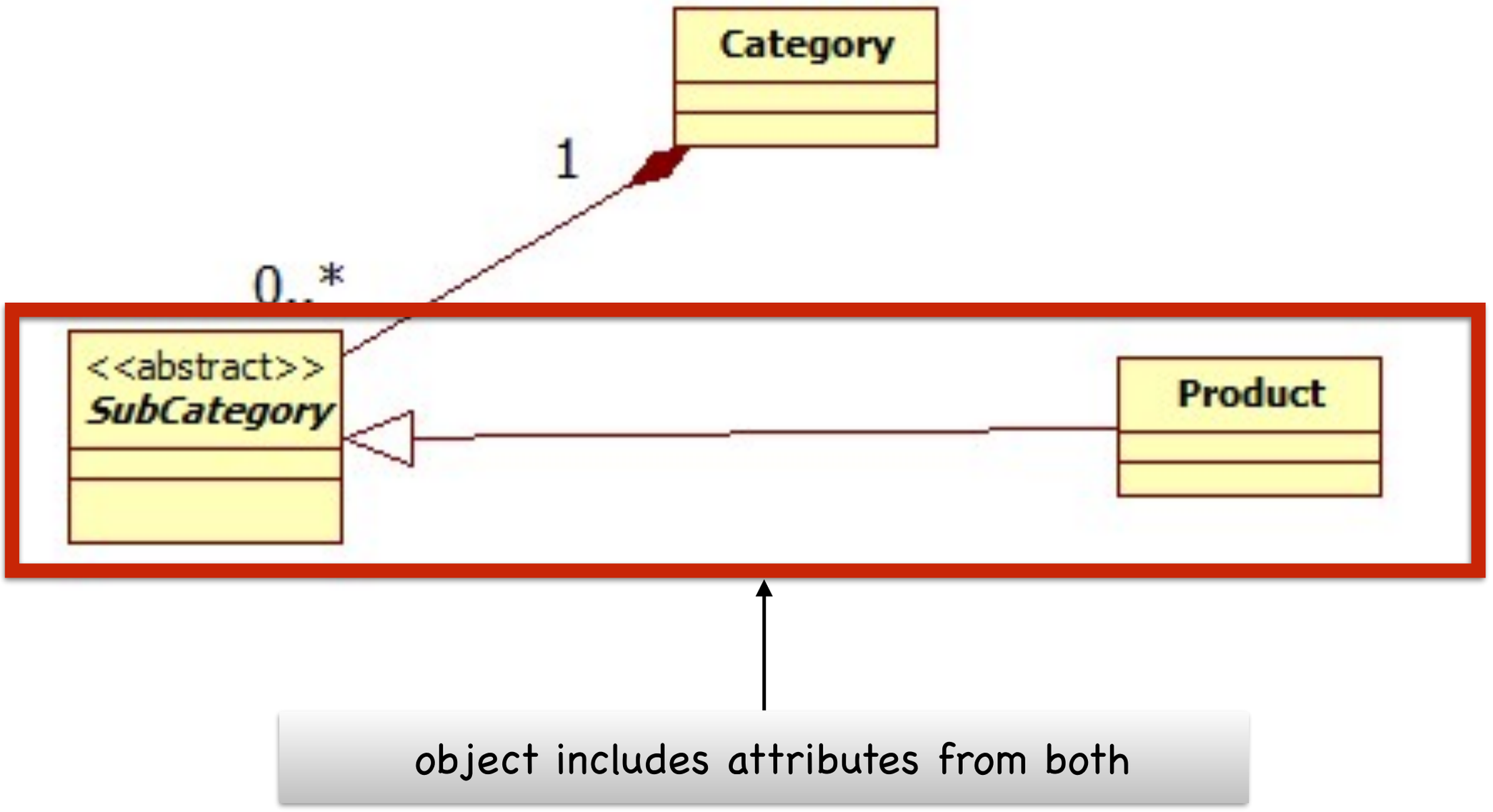
Case 2: A Pattern for Item Classification

Composition or inheritance can be used for classification



Using Composition for Classification

Actual product is independent of the classification. Classification of product is found by accessing related category object



Using Inheritance for Classification

Classification is embedded in the object. Querying the object's type is needed to get its type

Case 3: Library Management System

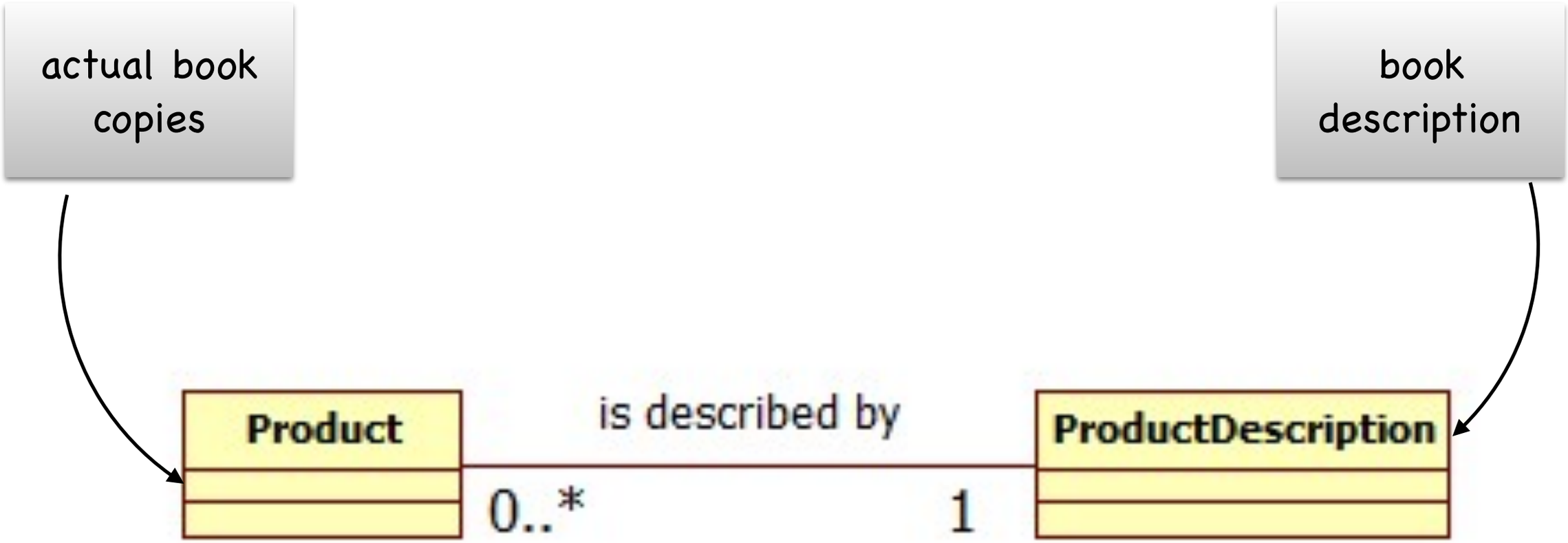
You are designing a system to keep track of library books—titles available, copies available and who has which copy.

You need to keep track of available titles even though there may not currently be copies of those titles (e.g. Copies were worn out or lost and have not yet been replaced).

How would you model the books and copies?

observations

- notion of item description and item instances are distinct but related



Case 3: A Pattern for Inventory Management

For use with any system requiring the management of multiple items of the same type