The Domain Model
Introduction

- Partitions and illustrates the important domain concepts.

- A classic object-oriented analysis activity.

- What are the objects of interest in the this domain?
  - their attributes?
  - their relationships?

- IMPORTANT: Not software objects, but a “visual dictionary” of domain concepts.
A Domain Model Does Not Represent Software Objects

- A model of domain concepts, not of software objects.
  - A “visual dictionary” of important words in the domain.
- Uses UML static structure diagram notation.
Terminology

- UP domain model = book conceptual model
Partitioning the Domain Model

Although this is conceptually accurate, a person will not actually draw package boxes around groups as in this example. Rather, a CASE tool will allow “drill down”.

- Note how one can reference types from other packages.
Finding Domain Concepts

- Candidate lists

- “Abbott” Analysis

- Existing analysis patterns
  - Analysis Patterns, Fowler
  - Data Model Patterns, Hay
  - The Data Model Resource Book, Silverston
Associations

"direction reading arrow"
-it has no meaning except to indicate direction of reading the association label
-often excluded
Multiplicity

zero or more; "many"

one or more

one to forty

exactly five

exactly three, five or eight

One instance of a Customer may be renting zero or more Videos.

One instance of a Video may be being rented by zero or one Customers.
Focus on Important Associations

Important association.
Need to remember.

1..* 1
Video

Rents

Customer

... Influenced-by 1 Loan Policy

Low value association.
Possible, but so what?
Attributes

- Show only “simple” relatively primitive types as attributes.

- Connections to other concepts are to be represented as associations, not attributes.

<table>
<thead>
<tr>
<th>Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>date : Date</td>
</tr>
<tr>
<td>time : Time</td>
</tr>
<tr>
<td>amount : Money</td>
</tr>
</tbody>
</table>
Do Not Use Attributes To Relate Concepts

Why not?

- Worse
  - Customer
    - rentedVideos: List of Video
  - Video
    - renter: Customer

- Better
  - Customer
    - 1
  - Video
    - Rents
      - 1..*
    - ...
    - ...

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