E-R Modeling: A Case Study

University of Alberta

Department of Computing Science

CMPUT 291 - File and

Database Management Systems

Goals

- Demonstrate how to build an E-R model from a simple Statement of Objectives of a *movie store.*
- Use Dia to draw E-R Diagram.

Scenario:

- A video store rents movies to members.
- Each movie in the store has a title and is identified by a unique movie number.
- A movie can be in VHS, VCD, or DVD format.
- Each movie belongs to one of a given set of categories (action, adventure, comedy, ...)

Scenario (cont'd):

- The store has a name and a (unique) phone number for each member.
- Each member may provide a favorite movie category (used for marketing purposes).

Scenario (cont'd):

There are two types of members:

Golden Members:

Require their credit card and can rent more than one movie each time.

Bronze Members:

Don't require their credit card and can rent only one movie each time.

Scenario (cont'd):

- A member may have a number of dependents (with known names).
- Each dependent is allowed to rent one (1) movie at a time.

Draw E-R Diagram using Dia:

Dia is a program that facilitates drawing charts and diagrams.

Dia for Windows can be downloaded from:

http://dia-installer.sourceforge.net/

To launch Dia on lab machines, execute the Unix command:

```
dia &
```


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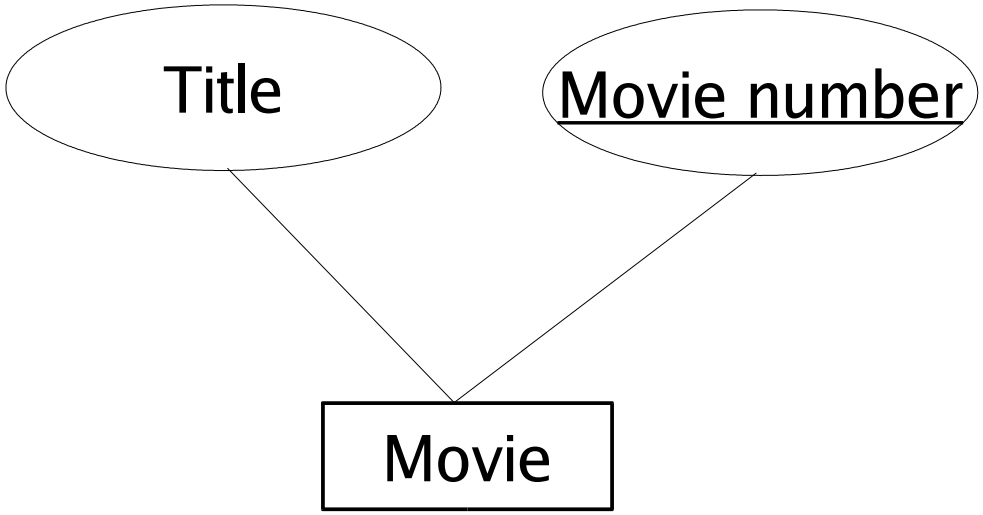

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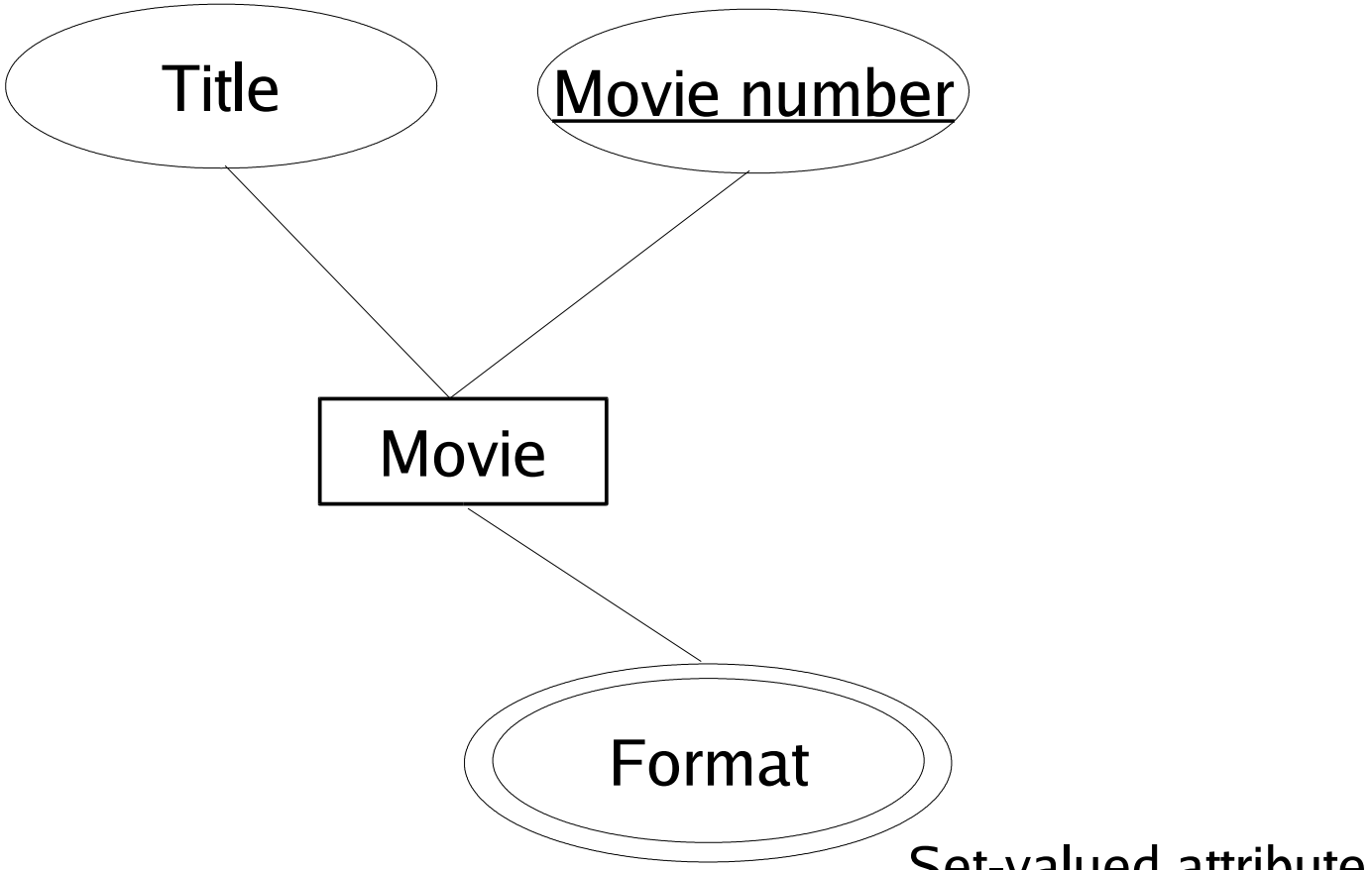

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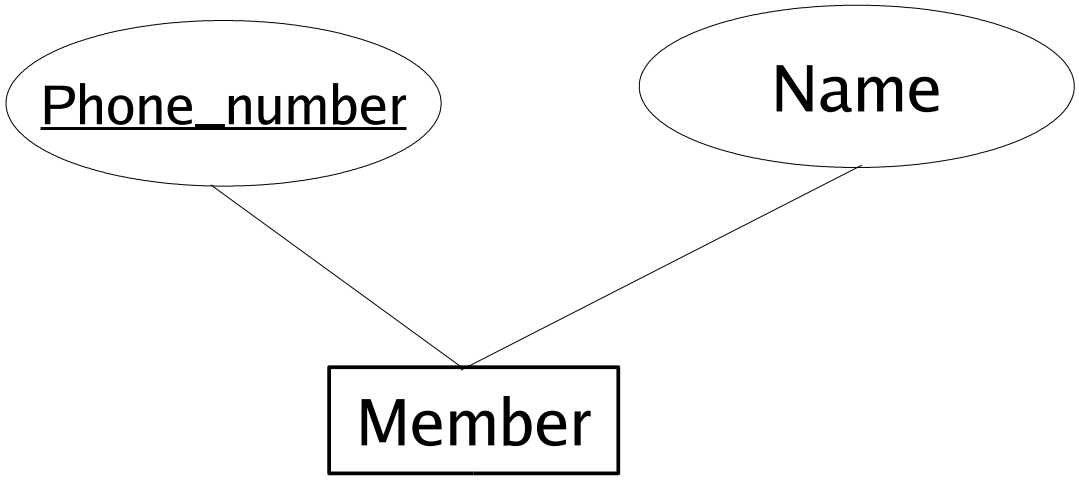

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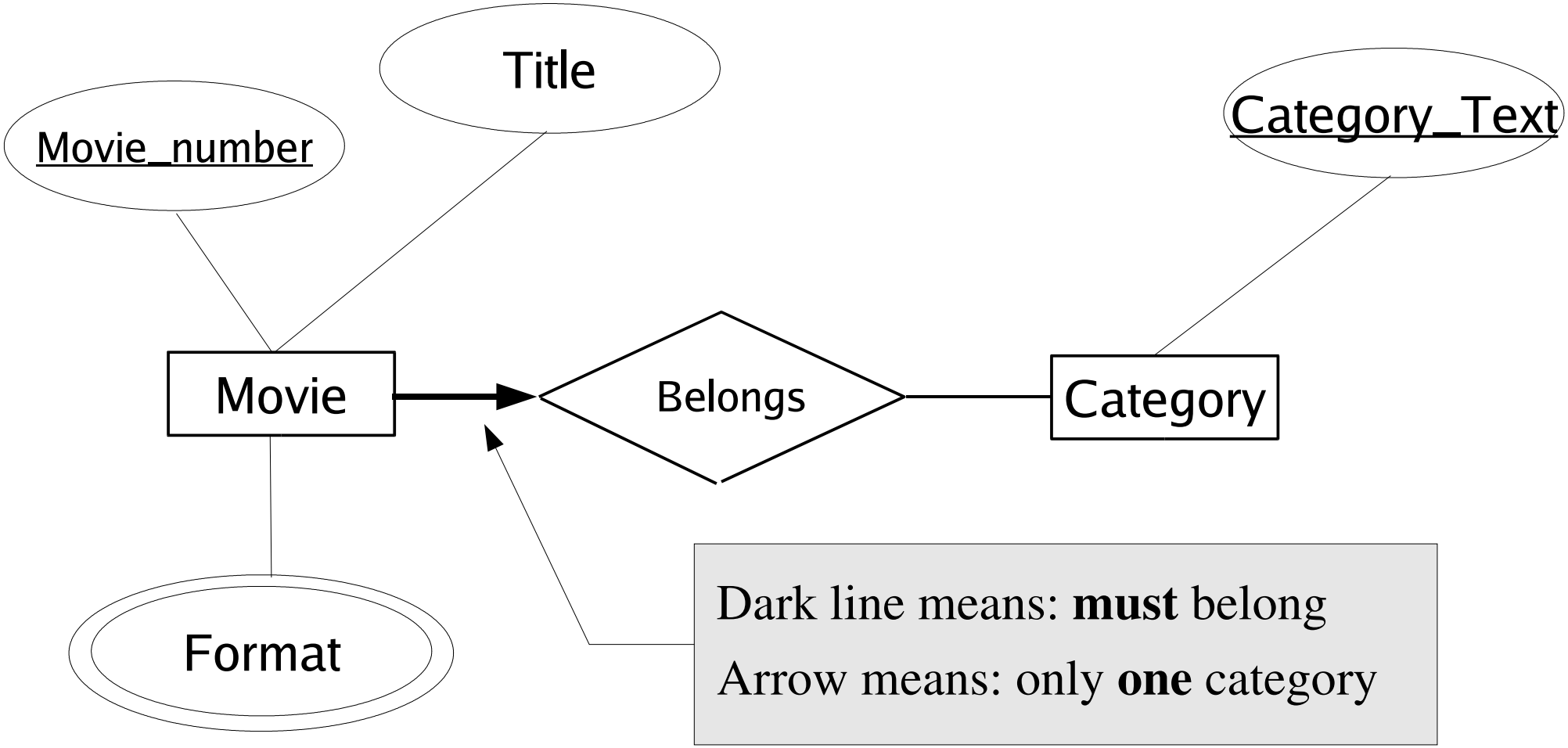

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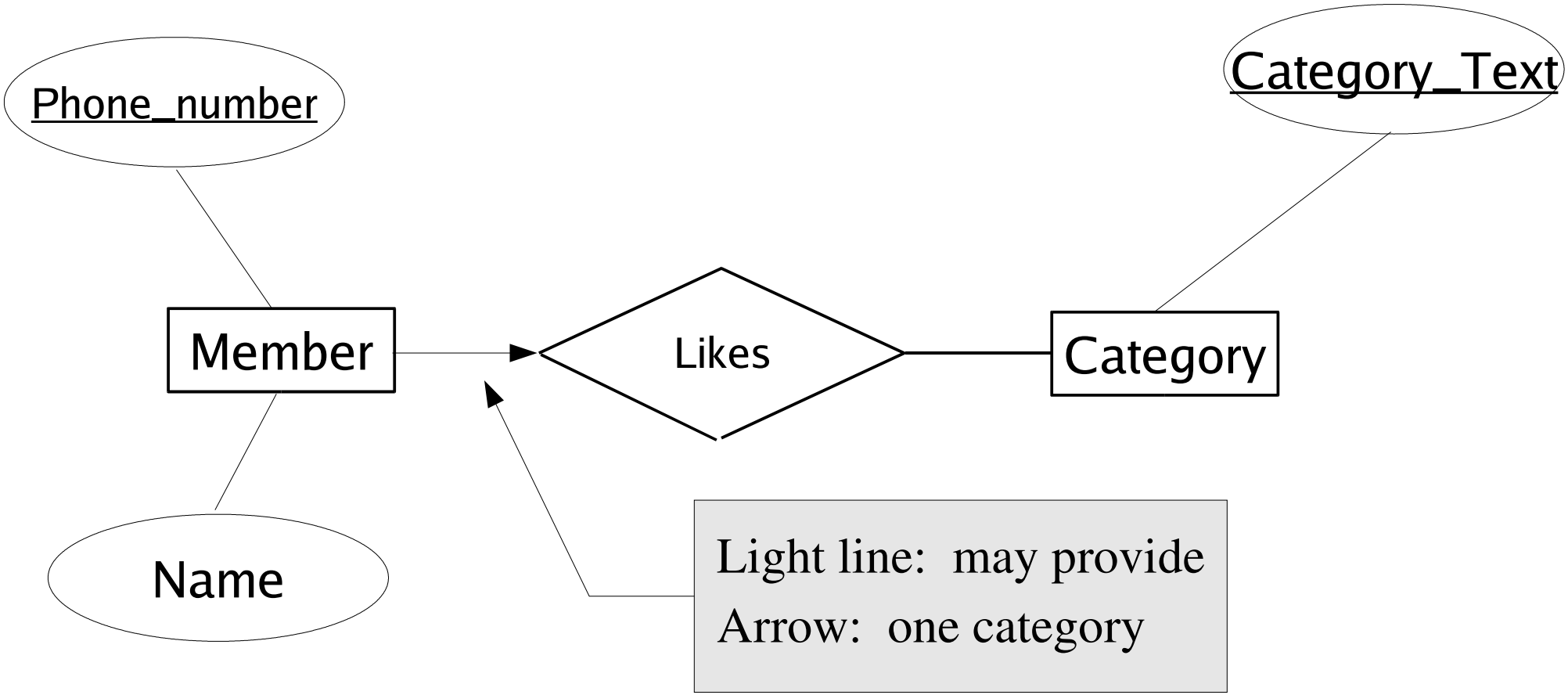

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Bronze Members: They don't provide their Credit Card number.

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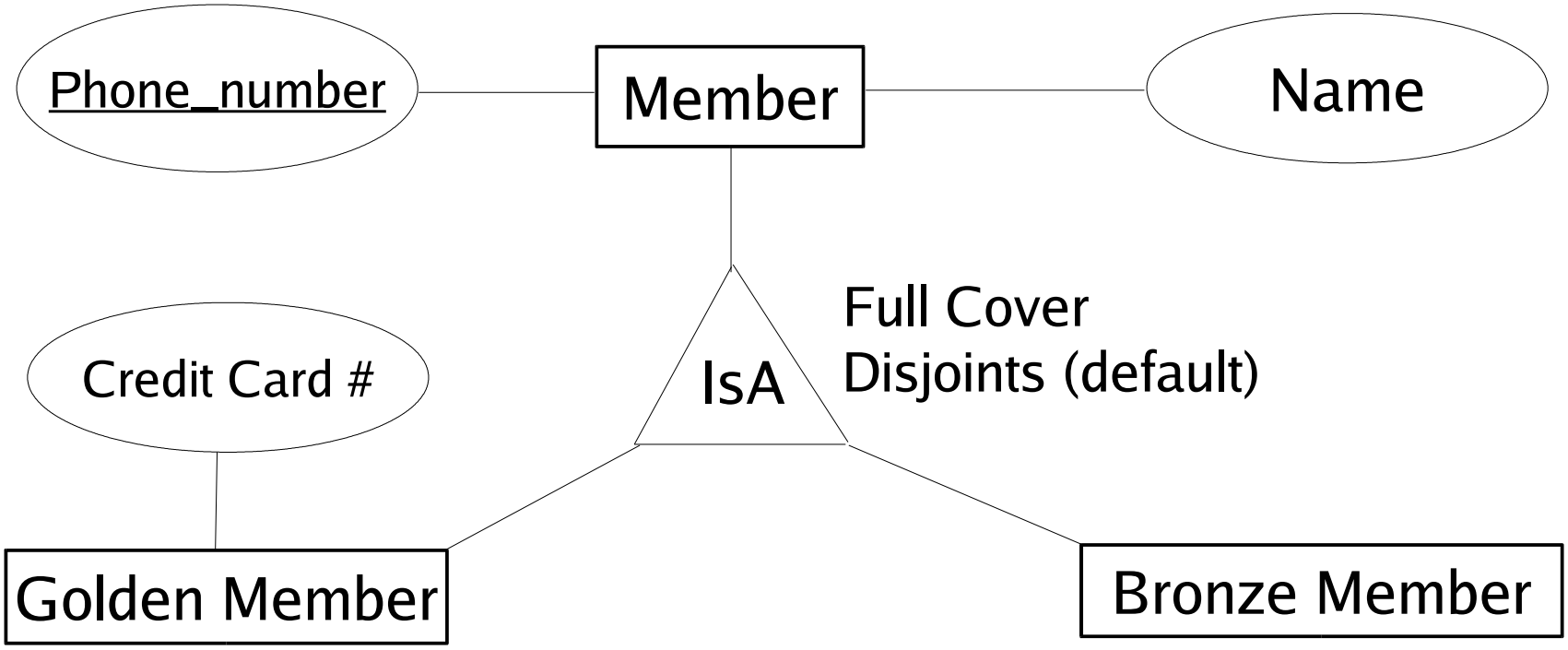

Golden Members can rent more than one movie.

Bronze Members can rent only one movie.

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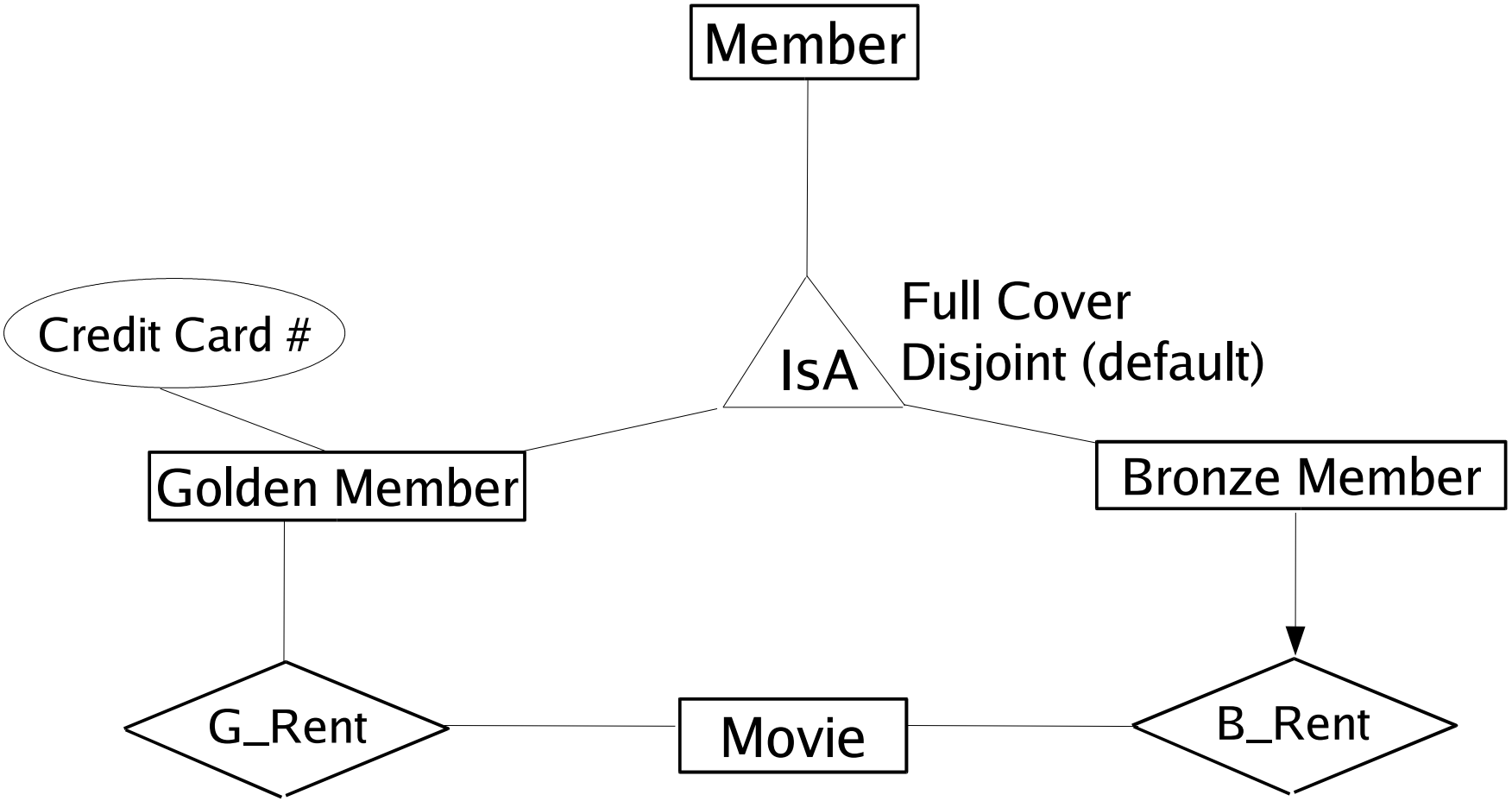

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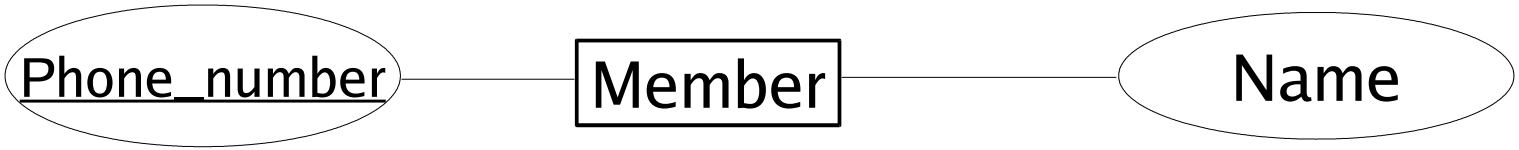

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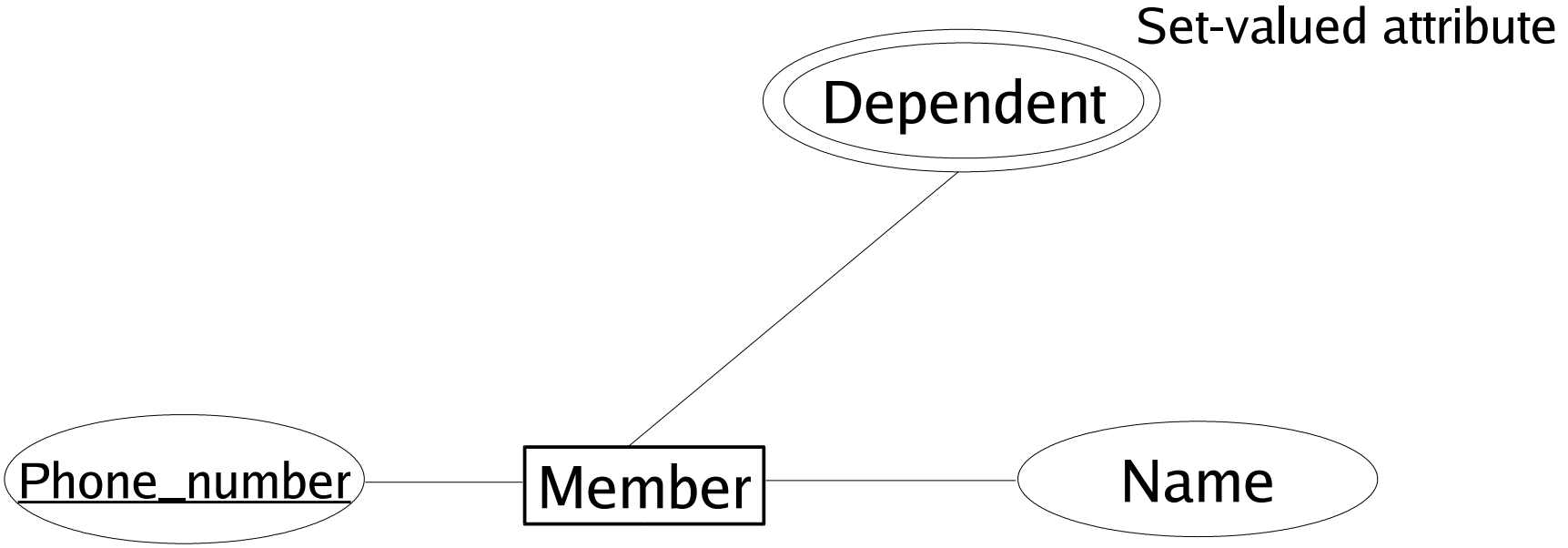

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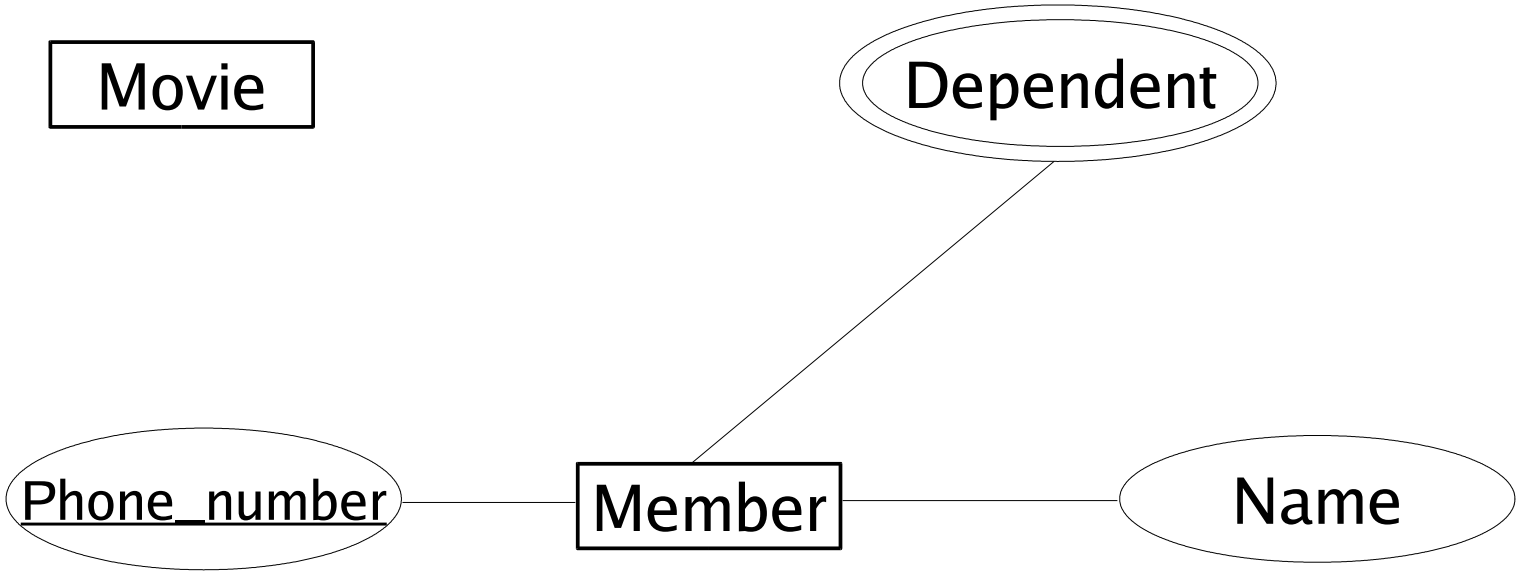
Each dependent is allowed to rent one (1) movie.



An attribute can not participate in a relationship

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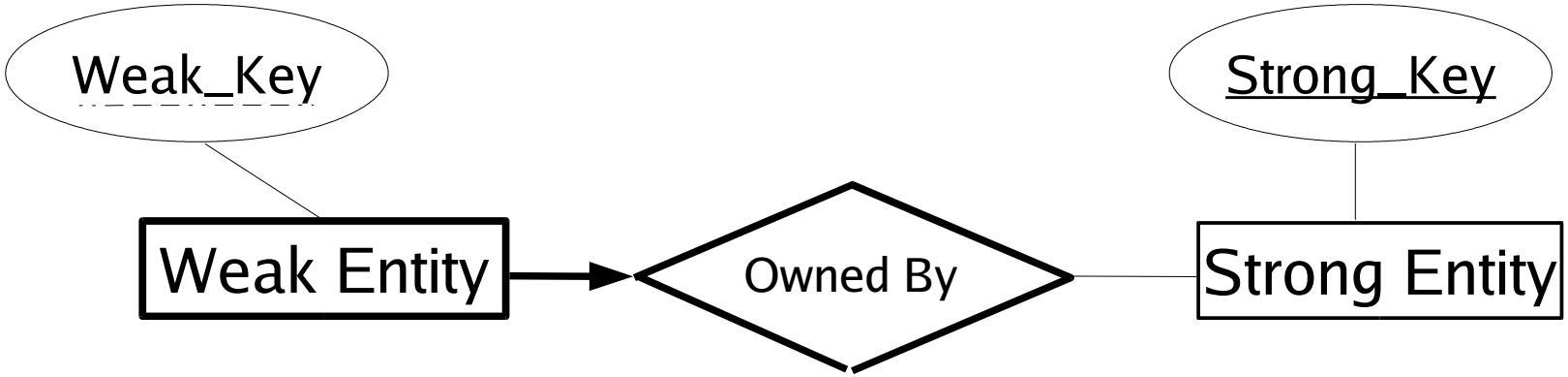
- ***dependent*** is an example of a *Weak Entity.*
  > Their existence depends on a strong entity (member).
  > They usually lack sufficient attributes to form a key.

- Primary key for a weak entity is formed by:
  > primary key of associated strong entity PLUS
  > the local attributes that provide individual identity.



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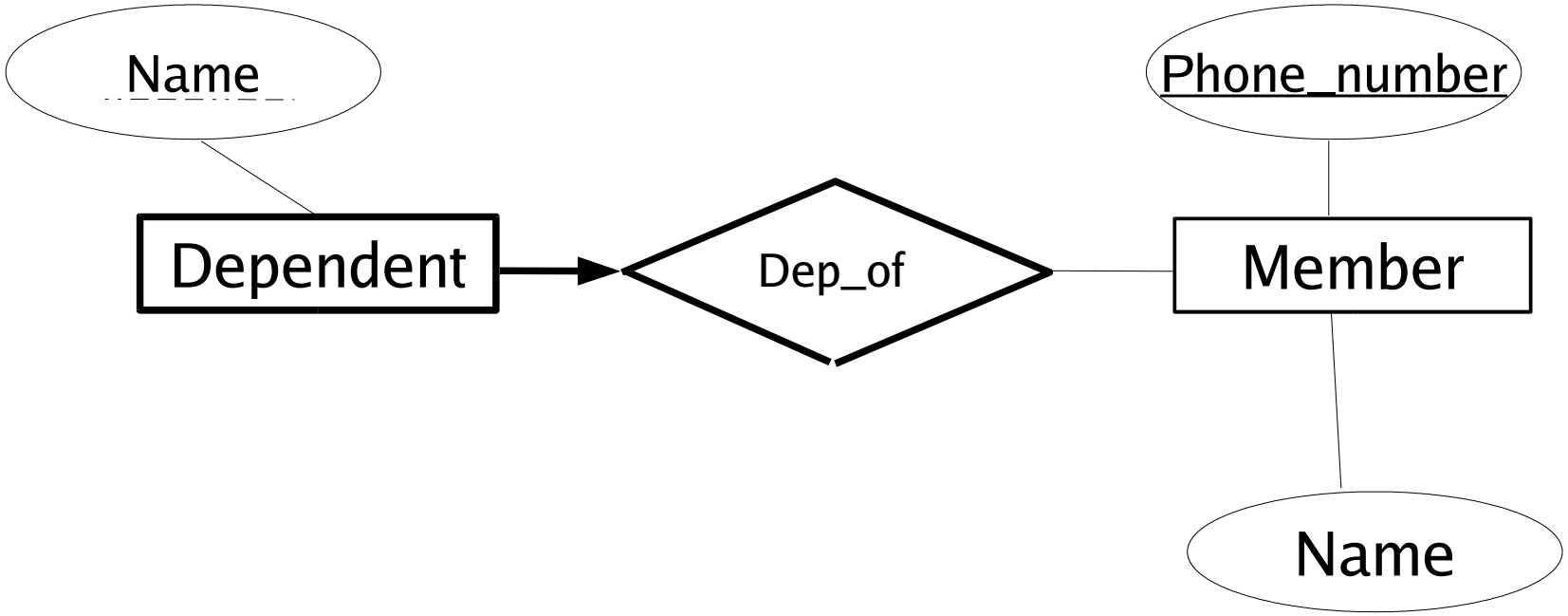

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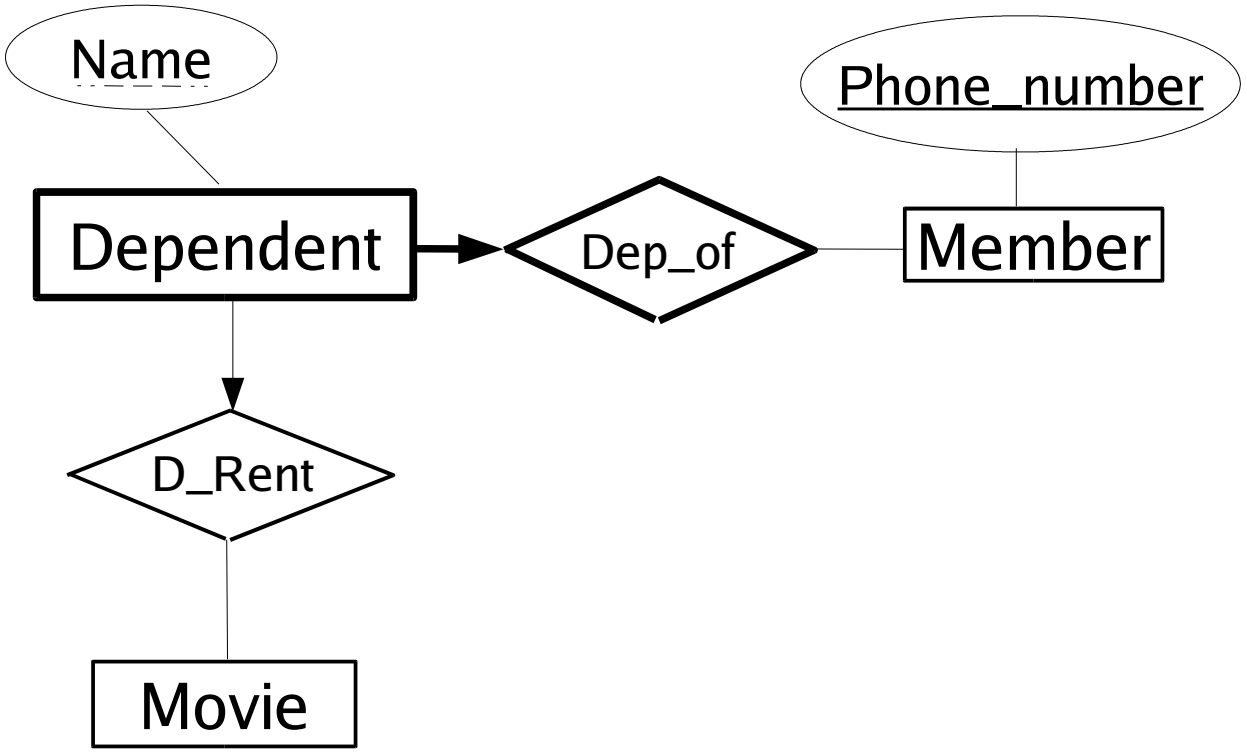

Now dependents CAN participate in a relationship

To print your E-R diagram:

- Print to a postscript file (e.g., diagram.ps) in Dia.
  - Ensure that the diagram fits on one page, first.
- At the Unix command prompt, execute the command:

```
lpr -Php219 diagram.ps
```

For printing or any other lab hardware & software problems contact the Help Desk:

- Room: 1-49 CSC
- Email: helpdesk@ugrad.cs.ualberta.ca
- Phone: 492-9219