

## Enhanced ER Modeling

EER model (Enhanced ER model)  
developed by Teorey, Yang, and Fry [1986]  
extends Chen's ER model [1976]  
OO: sub/superclasses,  
inheritance,  
categories

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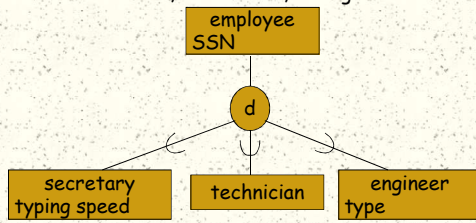
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## Subclass/Superclass

Employees can be  
secretaries, technicians, or engineers



Note local and global attributes (inheritance).

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## Example

Employees can be hourly, in which case we want their ID, name, Address, the day they were hired, and the rate at which they were hired. For salaried employees we want to store their ID, name, address, the day they were hired, and their annual salary and stock options. Consultants also get an ID, and we store their name, address, hiring date, contract number, and billing rate.

Also, Figure 4-2 (page 143)

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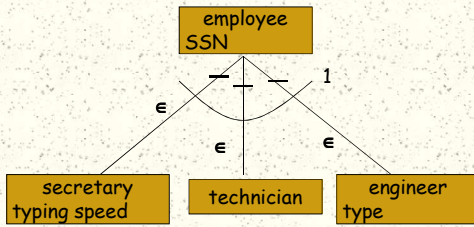
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## Alternate Notation



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## Classes

- allows specialization and generalization
- allow specific (local) attributes
- disjointness constraints
- subclasses can enter relationships
- multiple inheritance

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## Example, Generalization

### BigHit Video

Movies are stored on videos. "Video" comprises two different media: DVDs and tapes. For a DVD we want to store languages, captioning, and region encoding; for a tape we want to store the format and soundtrack information. For both formats we need to store when the video was acquired.

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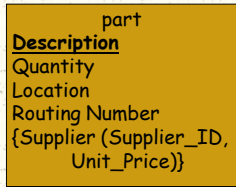
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### Example, Specialization



better design?

Figure 4-5, page 147

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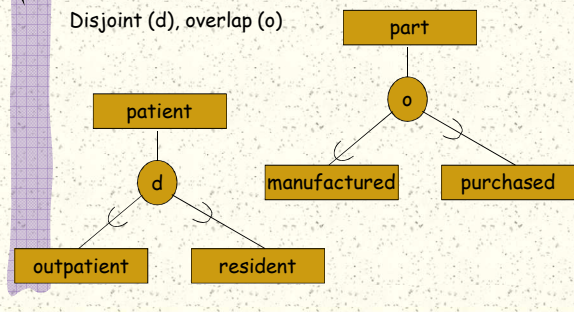
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### Constraints

Disjoint (d), overlap (o)



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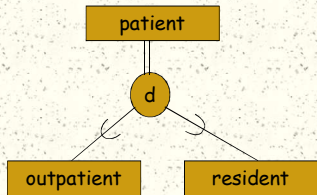
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### Completeness Constraints

Double line: has to participate



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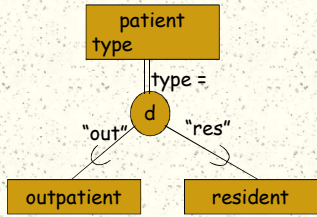
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## Subtype Discriminators

Double line: has to participate



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## Example

University Example, Page 152  
Pine Valley Furniture, Page 154/156

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