Enhanced Entity Relationship (EER) Model

What is an EER Model?

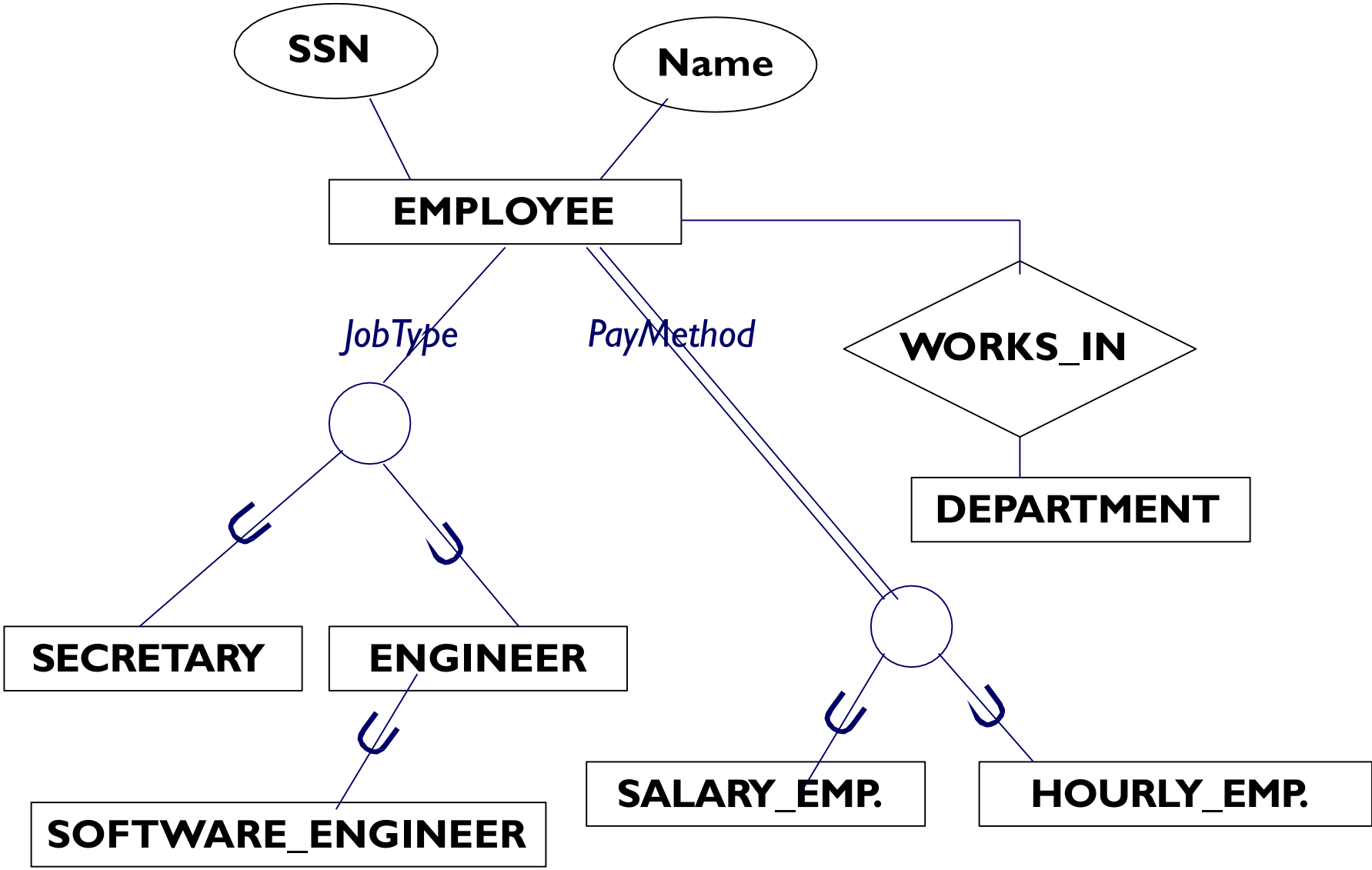
- Enhanced Entity Relationship (EER) – Data Modeling
- EER shows complex relationships between objects in a database (multimedia, geographical).
- Concepts of subclasses and superclasses, specializations and generalizations.
- Put concepts in diagram to form EER model

Specialization

Subgrouping into subclasses (top-down approach)

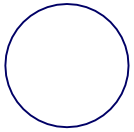
- Example: EMPLOYEE -> SECRETARY MANAGER, etc.
- Inheritance – Inherit attributes and relationships from superclass (Name, Birthdate, etc.)
- Subclasses may have uniqe attributes
  - SECRETARY has TypingSpeed attribute, MANAGER has BusinessUnitManaged, etc.

Specialization (cont.)



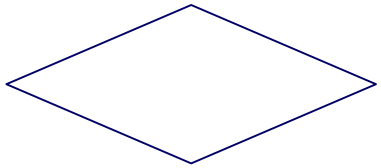
Model Shapes

- When you have more than one subclass based on the same defining attribute (*JobType*), use
- To show class/subclass relationships, use



  - Used for relationships between entity types

- To show relationship between two different entity types, use



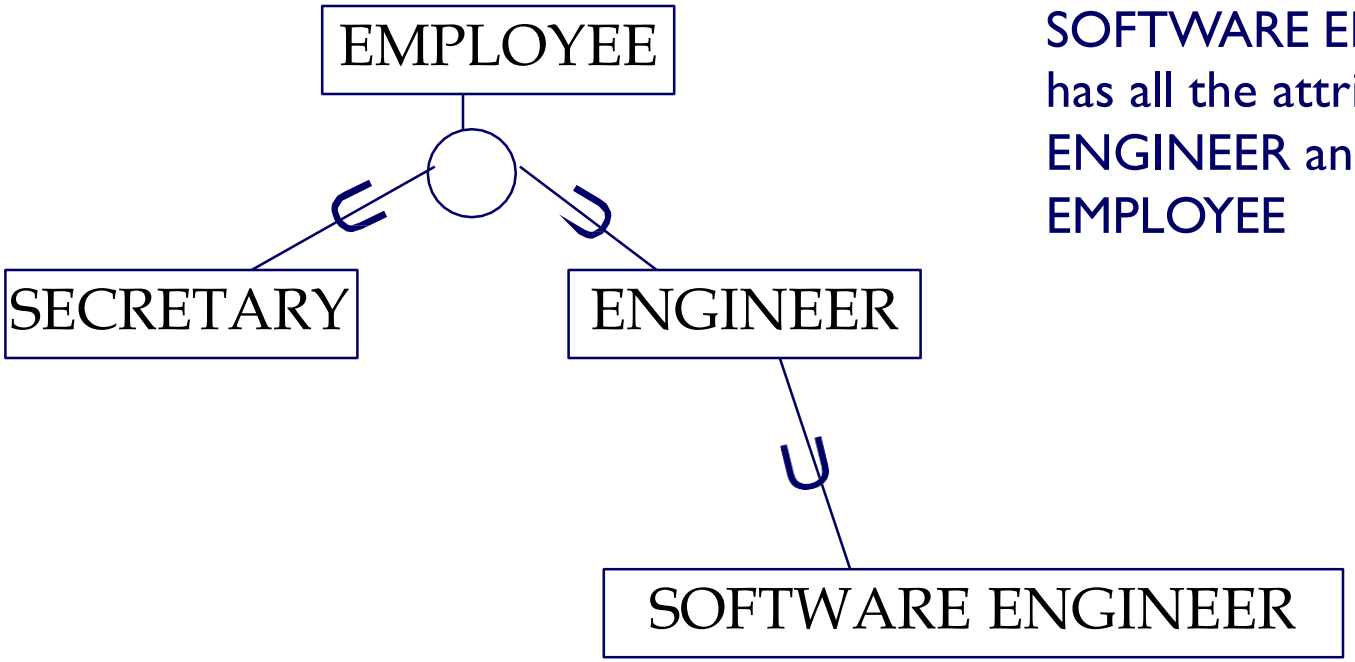
Generalization

Reverse processes of defining subclasses (bottom-up approach)

- Bring together common attributes in entities
- Example: CAR (with attributes color, price, max speed) and TRUCK (with attributes color, price, tonnage) can be generalized into VEHICLE (with attributes color and price).

Hierarchies and Lattices

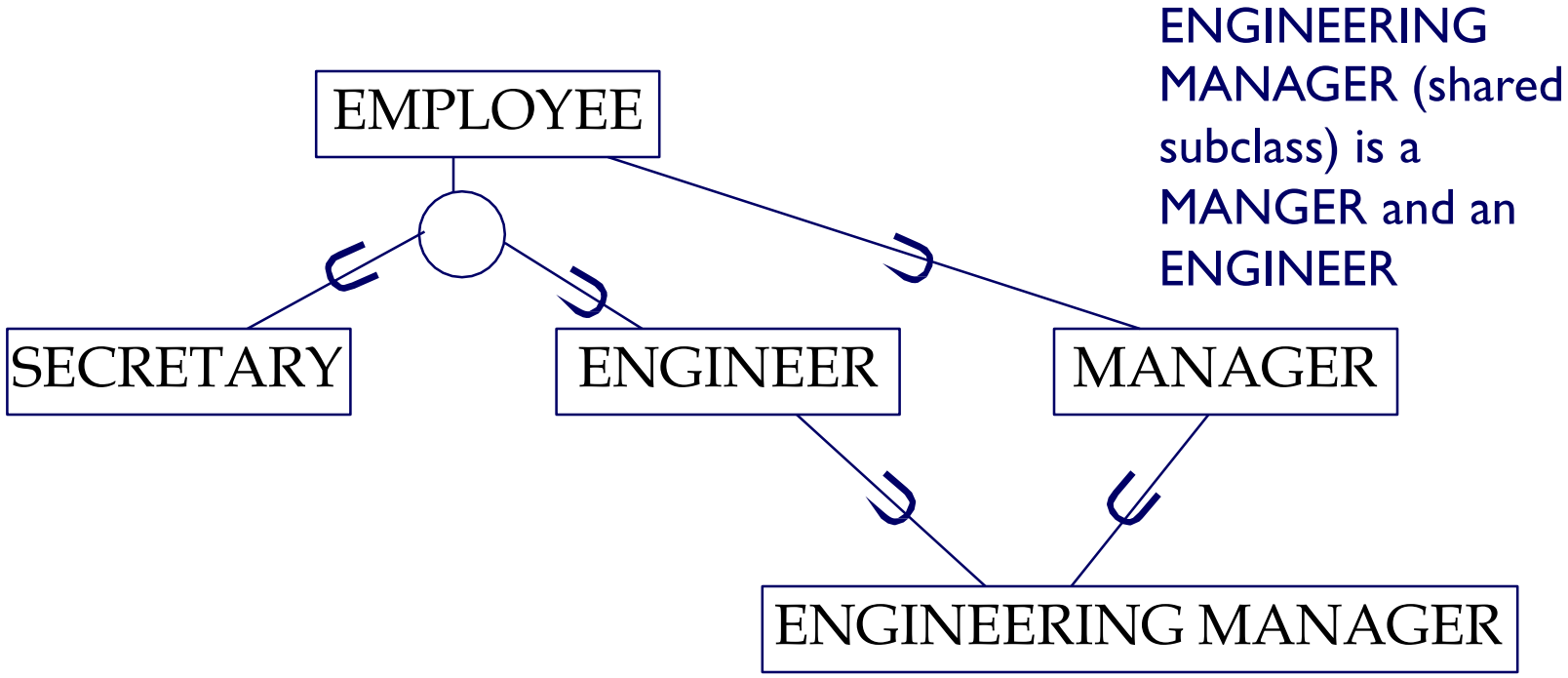
- Hierarchy – subclass participates in one class/subclass relationship



SOFTWARE ENGINEER has all the attributes of an ENGINEER and EMPLOYEE

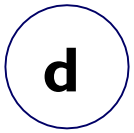
Hierarchies and Lattices

- Lattice – subclass participates in more than one class/subclass relationship

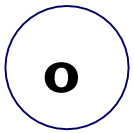


Constraints

- Disjoint – an entity can be a member of at most one subclass of a specialization



- Overlap – an entity may belong to more than one subclass of a specialization



- Total specialization – each entity of a superclass belongs to some subclass of a specialization

- Partial specialization – each entity of a superclass does not have to belong to some subclass of a specialization