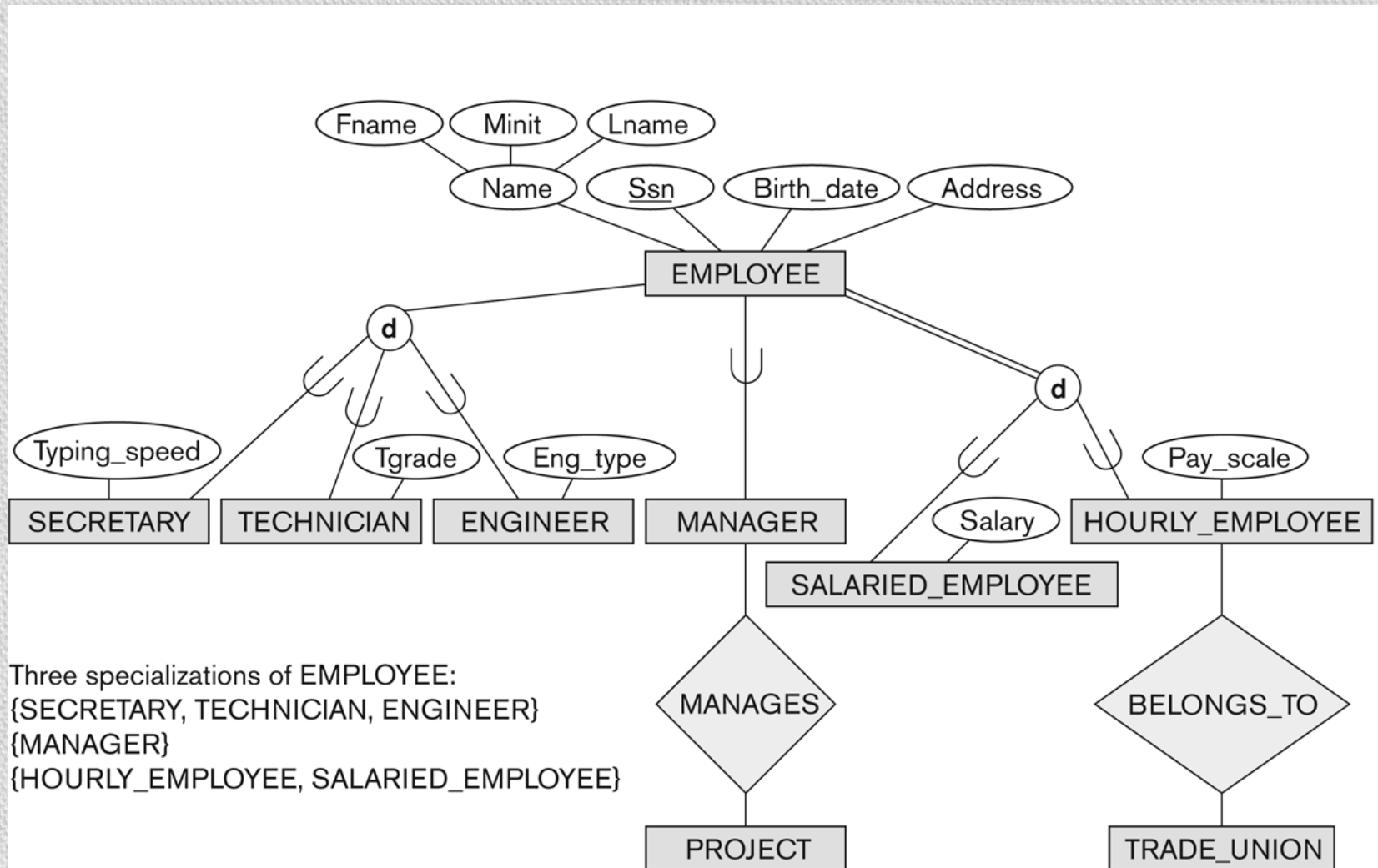
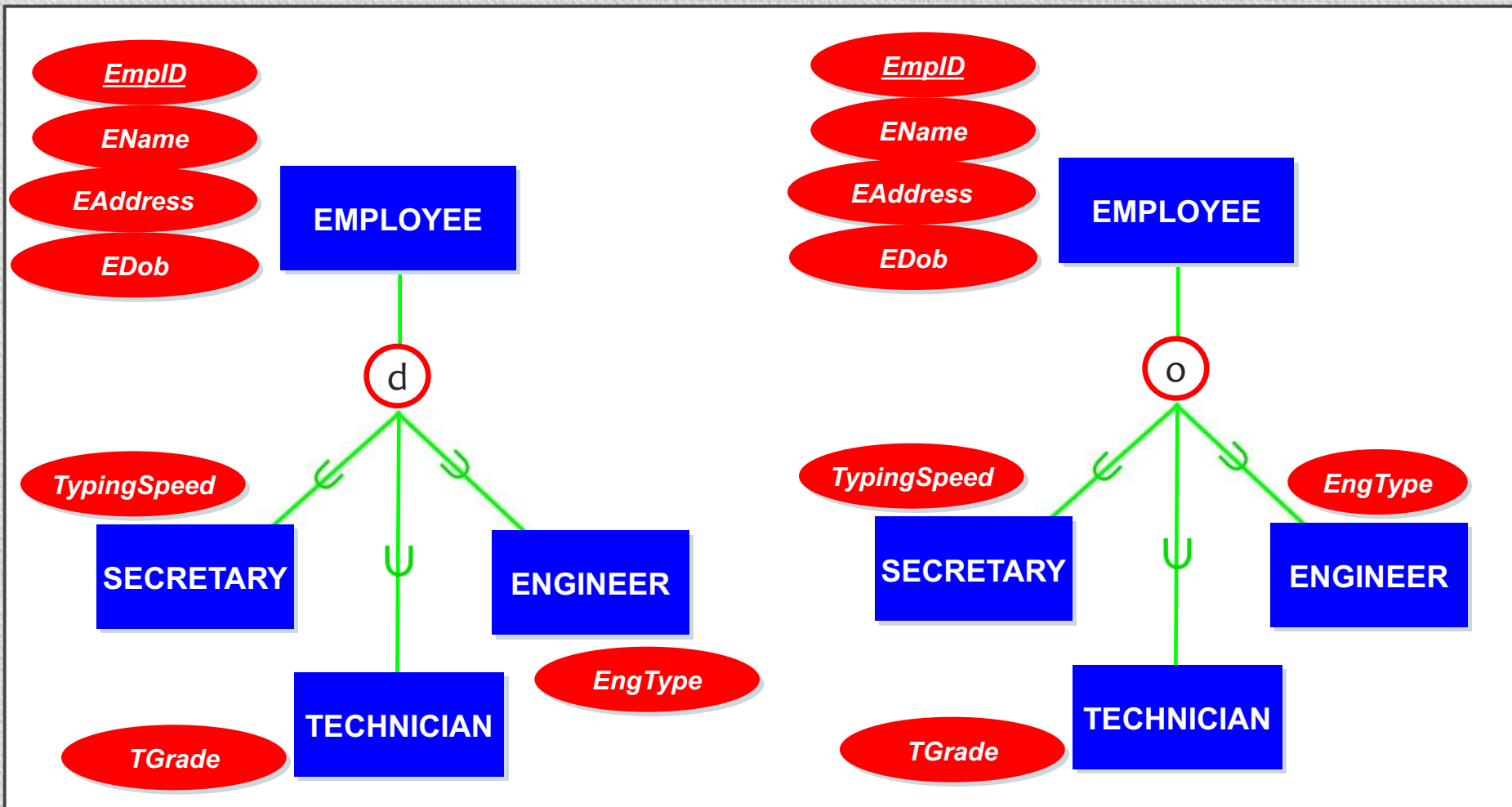


Subclasses and Superclasses



(Source: Elmasri and Navathe, Fundamentals of Database Systems, Figure 1, page 248)

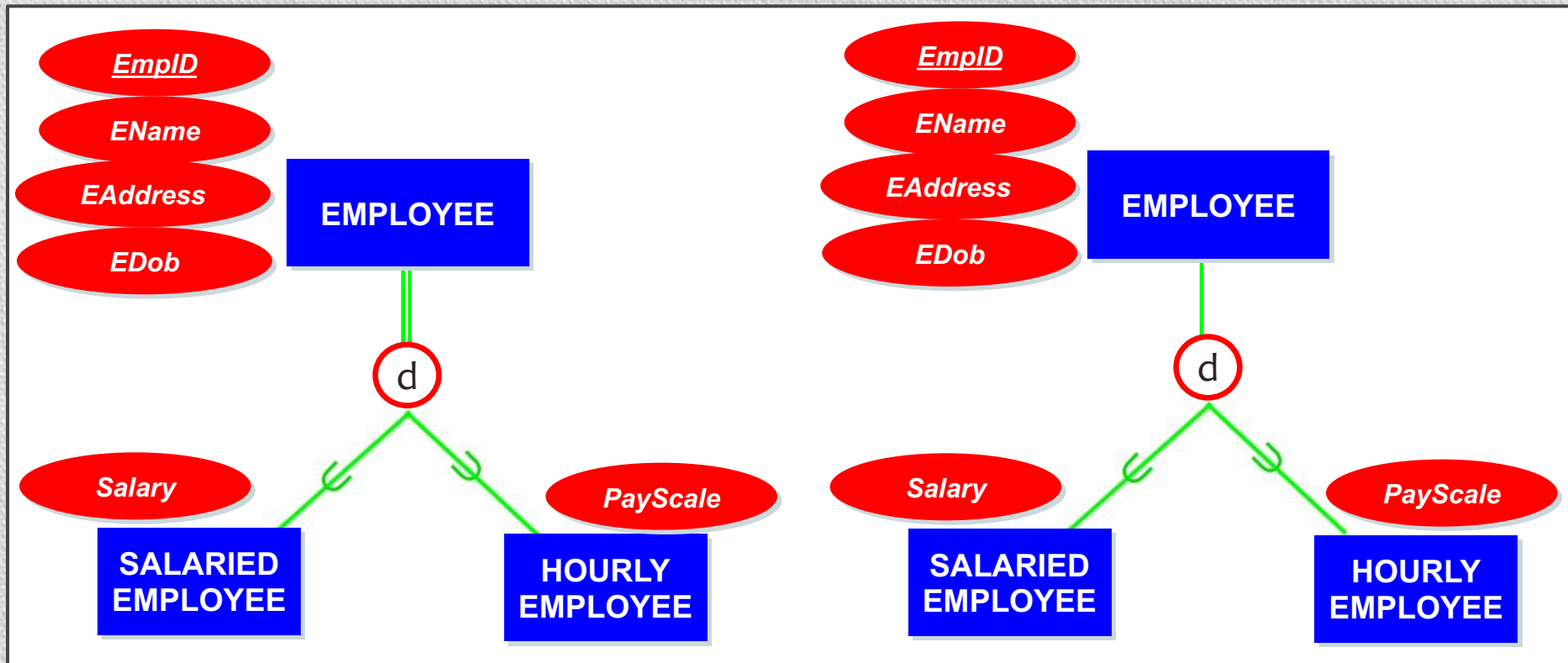
Disjointed Constraint



An Employee, say with ID "001" is: a secretary, OR a technician OR an engineer.

An Employee, say with ID "001" is: a secretary, OR a technician OR an engineer OR combination of the subclasses entities.

Completeness Constraint



An Employee, say with ID “001” is: a salaried employee OR an hourly employee.

An Employee, say with ID “001” is: a salaried employee OR an hourly employee OR none of them.

Transformation of Specialization/Generalization

Option **8A**: Multiple relations-Superclass and subclasses

Option **8B**: Multiple relations-Subclass relations only

Option **8C**: Single relation with one type attribute

Option **8D**: Single relation with multiple type attributes

	Disjointed		Completeness		Remarks
	"d"	"o"	"p"	"t"	
8A	✓	✓	✓	✓	
8B	✓	✓*	✗	✓	*Redundancy of values of superclass entity's attributes in all subclasses tables.
8C	✓	✗	✓	✓	Can generate many NULL values if many local attributes exist in the subclasses entities.
8D	✓	✓	✓	✓	

The selection of option is affected by variety of reasons, including the constraints of the relationships, the attributes of the entities and the cost to process the queries.

Specialization vs Union*

* See problem on the previous lecture.

SUPER-CLASS

Is-a

SUB-CLASS

Jaime (owns Veh. ABC)
Bank of Stark (owns Veh. DEF)
Cersei & Bank of Lannister (own Veh. XYZ)

OWNER

O

PERSON

Jaime, 40 y/o
Cersei, 40 y/o
Tyrion, 38 y/o

BANK

Bank of Lannister
Bank of Stark
Bank of Targaryen

Jaime (owns Veh. ABC)
Bank of Stark (owns Veh. DEF)
Cersei & Bank of Lannister (own Veh. XYZ)

OWNER

U

PERSON

Jaime, 40 y/o
Cersei, 40 y/o
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BANK

Bank of Lannister
Bank of Stark
Bank of Targaryen