

CS4.301 Data & Applications

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Entity, Entity type, Entity set

Entity is a basic concept for the ER model. Entities are specific things or objects in the mini-world that are represented in the database.

EMPLOYEE **John Smith**

Research DEPARTMENT

ProductX PROJECT

Entities with the same basic attributes are grouped or typed into an **entity type**.

table named **EMPLOYEE** in the Company DB

table named **STUDENT** in the University DB

Entity, Entity type, Entity set

Entity Set is a collection or set of all entities of a particular **entity type** at any point in time; type of all entities should be same

All students from STUDENT table at time t

All employees from EMPLOYEE table at time t

Use a table to explain

Student_id	Student_name	Student_age	Student_gender
1	Keshav	18	M
2	Pranjali	18	F
3	Shrikara	18	M

Entity: Each row

Entity type: Details about students, so type is STUDENT

Entity set: Records with student_id 1, 2, 3

Entity	Entity type	Entity set
A thing in the real world	A category of a particular entity	Set of all entities of a particular entity type
A row / record in a table	Name of a table	All rows of a table at a given time

Initial Design of Entity Types:

EMPLOYEE,
DEPARTMENT, PROJECT,
DEPENDENT

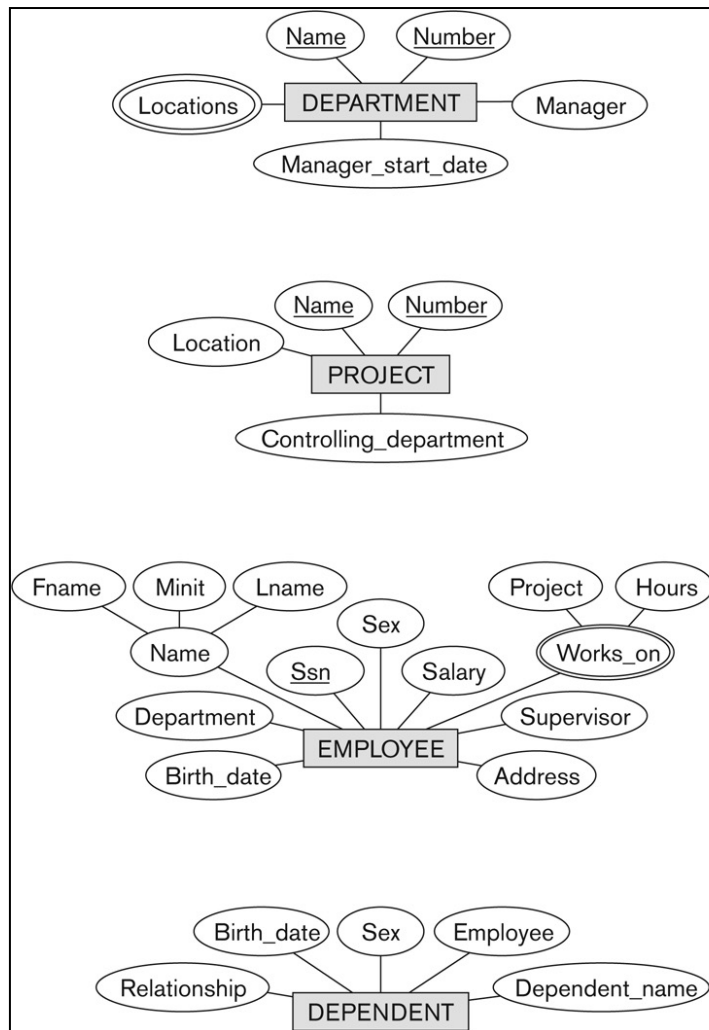


Figure 3.8
Preliminary design of entity
types for the COMPANY
database. Some of the
shown attributes will be
refined into relationships.

Multivalued attributes

An entity may have multiple values for that attribute or An attribute having **more than one value for a given entity**

Color of a CAR

PreviousDegrees of a STUDENT

Phone_no of a STUDENT

Can't be height or weight! One student cannot have 2 values

Relationships, Relationship Type & Relationship Set

A relationship relates two or more distinct entities with a specific meaning.

EMPLOYEE **John Smith** *works on the* **ProductX** PROJECT

STUDENT **Keshav** *is enrolled in* **DnA** COURSE

Relationships of the same type are grouped or typed into a relationship type.

WORKS_ON relationship type in which EMPLOYEES and PROJECTs participate

MANAGES relationship type in which EMPLOYEES and DEPARTMENTS participate

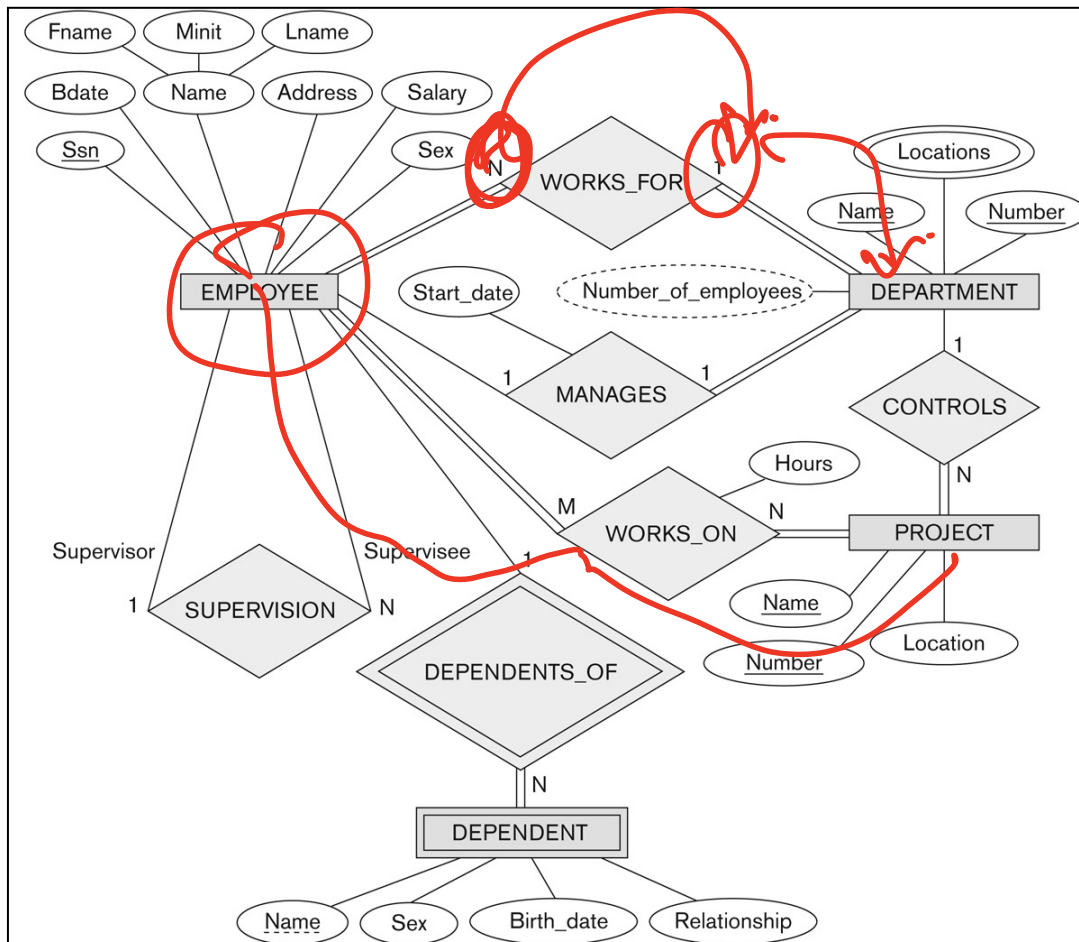
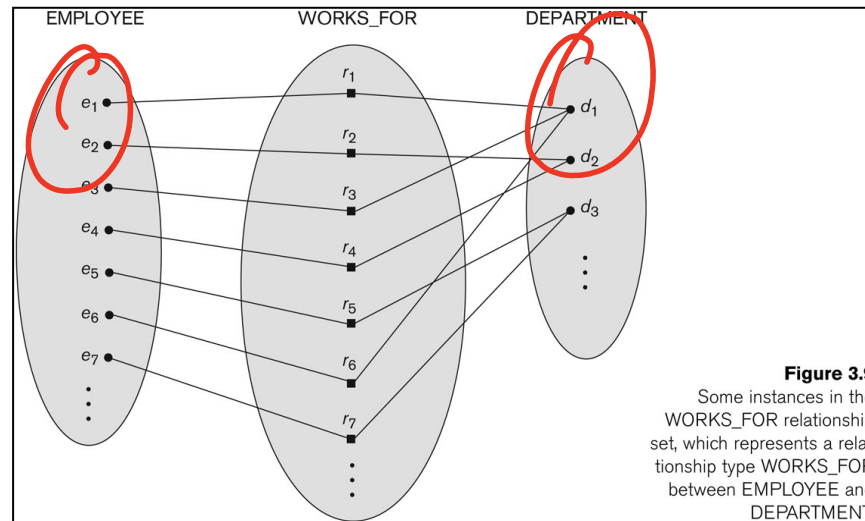


Figure 3.2

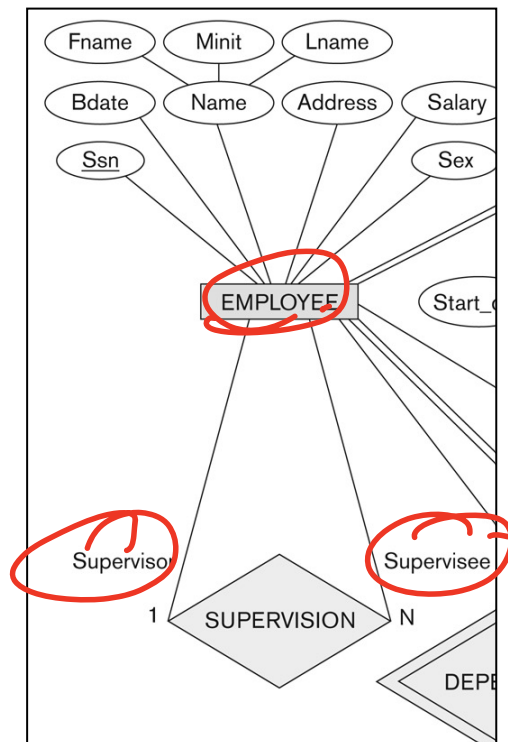
An ER schema diagram for the COMPANY database. The diagrammatic notation is introduced gradually throughout this chapter.

Relationships, Relationship Type & Relationship Set

A set of relationships of the same type is Relationship Set



Recursive relationship



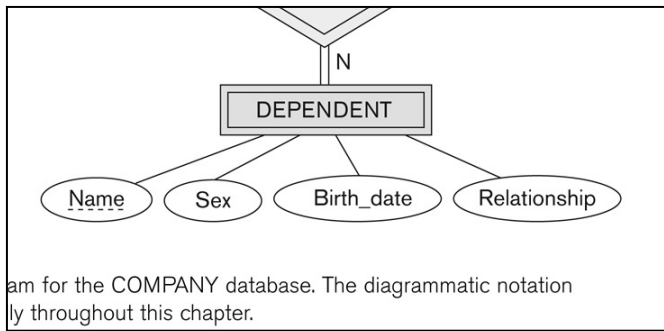
Same entity participate in the relationship

Many to one relationship

Many students enrolled in one course

One supervisor advising many students

Partially Unique



Name of a DEPENDENT is unique only with the EMPLOYEE otherwise not;

Apartment # is partially unique because they are only unique for the building not for the

Bibliography / Acknowledgements

Instructor materials from Elmasri & Navathe 7e

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Thank you
for attending
the class!!!