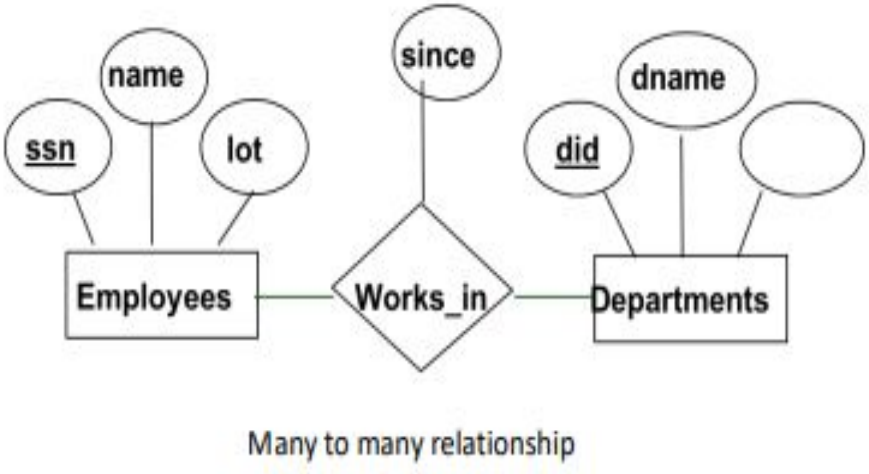
CS 306 Recitation 4

Hasan Ertuğrul Çinar

Converting ER Diagram to Relational Model

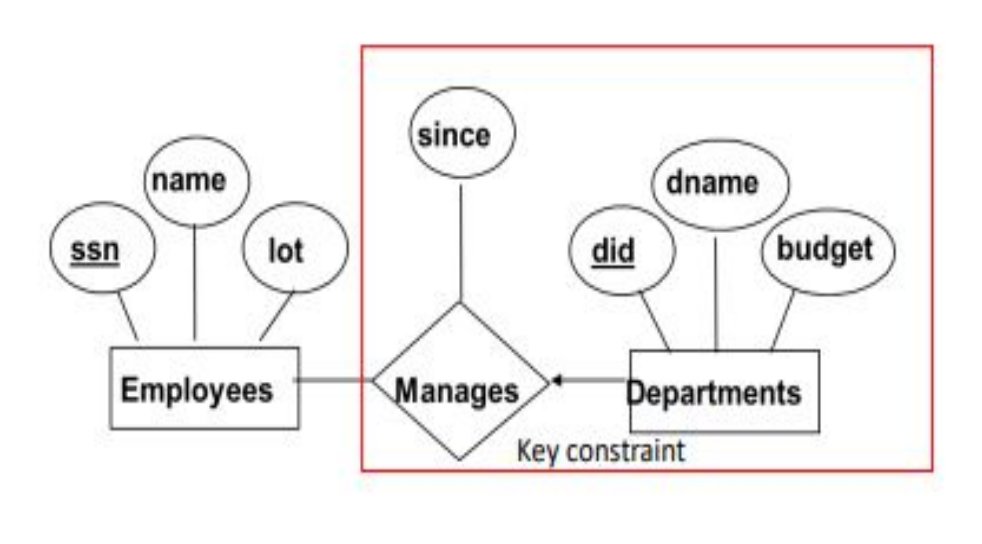


Many to many relationship

How many tables are required for this ER model?

- Need to consider which information needs to be unique
- Many to many relationships
- All entities and relationships must exist by itself

Converting ER Diagram to Relational Model



In this scenario:

- A key constraint exist
  - Since for each department, there can only be one record in Manages relationship
- There is no need for adding another table for Manages
- Merge two table together

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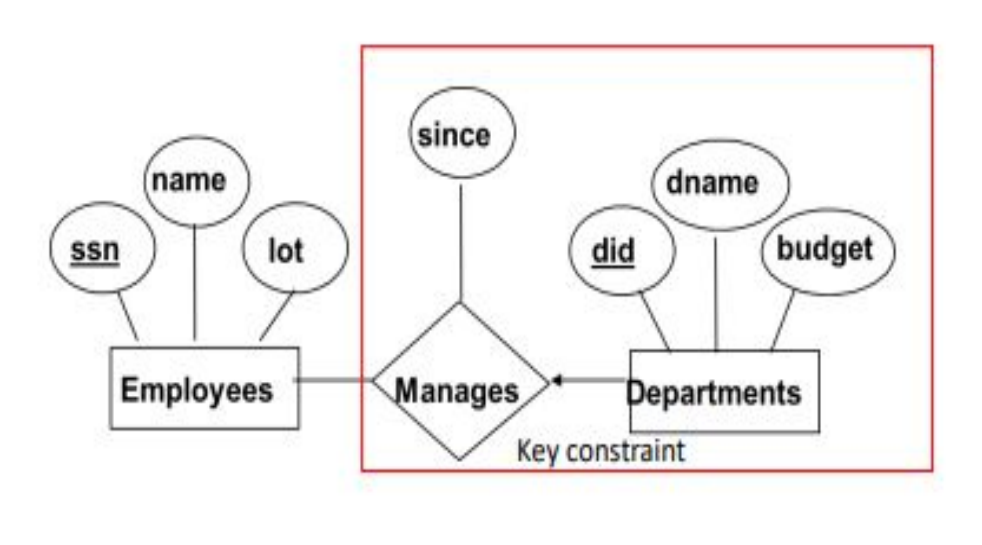

Continued:

```
CREATE TABLE  Dept_Mgr(
   did  INTEGER,
   dname  CHAR(20),
   budget  REAL,
   ssn  CHAR(11) not null,
   since  DATE,
   PRIMARY KEY  (did),
   FOREIGN KEY (ssn) REFERENCES Employees(ssn)
ON UPDATE CASCADE);
```

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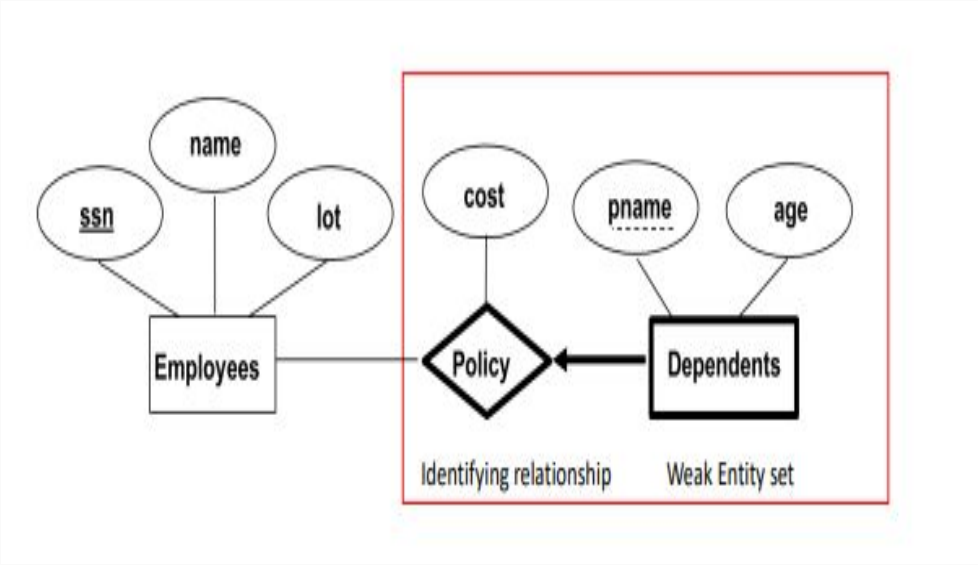

Similar case for Weak entity:

- Main difference caused by participation constraint
- Keep that in mind!
  - Weak entities relies on other entities to create meaningful data records
- Need to adjust foreign key constraint for referential integrity
  - Change On Update Cascade to On Delete Cascade
  - Once the Employee is deleted, the record in Dependents also needs to be deleted

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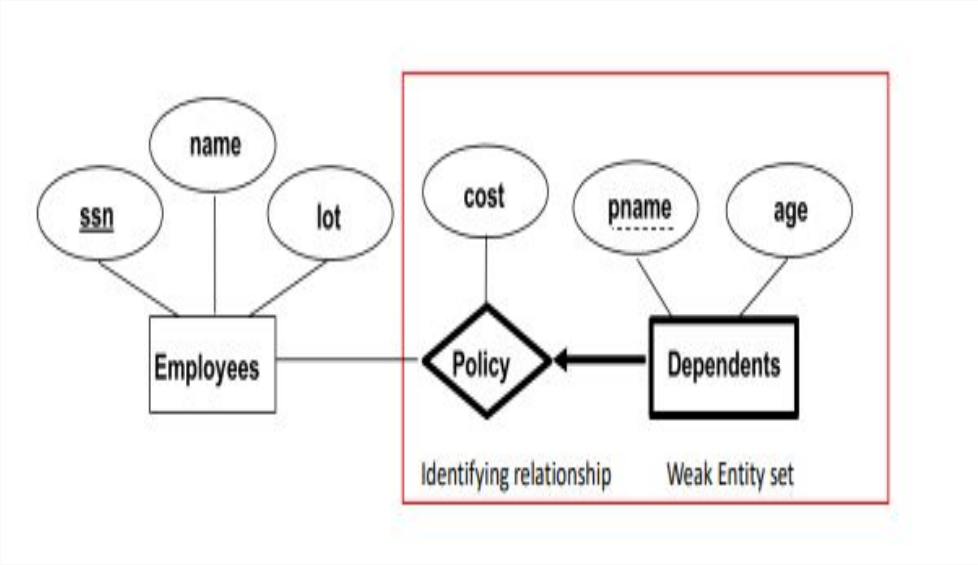

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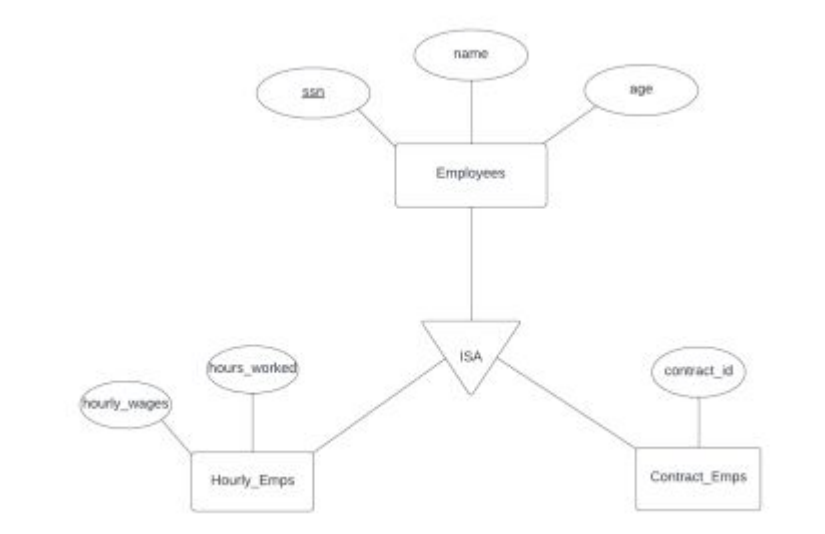

If there is a covering constraint and there does not exist an overlap constraint, this relation can be expressed in two tables, however

In this ISA relation

- There are two entities which relies on Employees relationship
- Subentities must have separate tables an employee does not need to either a hourly or contract employee

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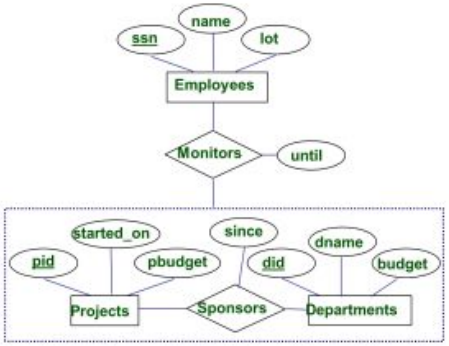

- Have to record the descriptive attributes of Sponsors relationship.
- Not every sponsorship has a monitor, some (pid, did) pairs in the
- Sponsors relation may not appear in the Monitors relation.

Due to the requirement that it is a must to record descriptive attributes of sponsors relation (since), there needs to be a separate table for Sponsors relation

Otherwise, it would be possible to only use Monitors table to represent the aggregation