More ER Modeling

- review one-to-many
- one-to-one
- recursive relationships
Review:

One-to-many and many-to-one

One movie is stored on many videos – many videos are in one store. Both relationships are mandatory. (Why?)
Review: one-to-many optional

- Here a mechanic can service many cars but a car does not need to have a mechanic.
Review: resolve many-to-many

Here an employee can work in many stores, and a store can have many employees. Use bridging entity for M:N relationships.
Review: weak entity

• A **weak entity** is
  – An entity with no key of its own
  – An entity whose instances cannot exist without being related to other entities

• An **identifying relationship** type is
  – A relationship type that determines the keys of the weak entities

• Weak entities in IDEF1X have rounded corners.
• Identifying relationships are solid lines, non-identifying are dotted lines
Participation

- A car has zero or one mechanics (mech_ssn can be null).
- Every mechanic must be the mechanic of some car.

- The “P” stands for participates.
- It does not affect the table design, it’s just information for us.
One-to-one relationships

- Suppose we have *store* and *employee* entities.
- Each store has one manager.
- An employee can only manage one store.
More one-to-one

- What does the Z mean when we have a 1:1 relationship?
- It is not related to “optional”.
- An employee will manage either one store or zero stores.
- “Optional” means that a store could exist with no manager.
Role names

- Instead of ssn, we might want to rename the foreign key to manager_ssn.

In ER Studio we would use the “edit rolenames” feature
Recursive relationship

- It is possible to have a relationship between an entity and itself.
- Rolenames are required.
- ex: one employee can be the supervisor of another.
Time to talk about keys

- Superkey
- Candidate Key
- Primary Key
- Alternate Key
- Surrogate Key