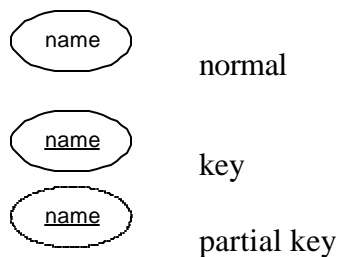


The Entity-Relationship (ER) Model

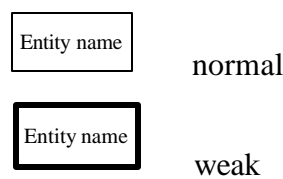
- 1) Describes/Model
 - a. Entities- real world objects, described using a set of attributes
 - b. Relationships- associations among two or more entities
- 2) Features
 - a. Integrity constraints
 - i. Key constraint- must be unique
 - ii. Participation constraint (on a relationship)- entity must have at least one relationship with other entity
 - b. Weak Entities- entity requires another entity to be uniquely identified
 - c. N-way relationship- relates more than two entities
 - d. ISA Hierarchies- allows for specific sub-types of entities

3) Basic E-R notation

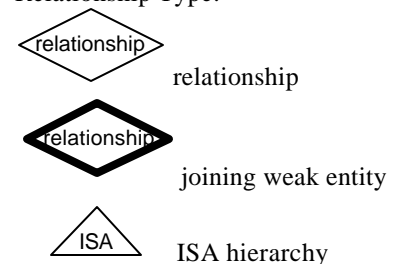
Attribute Type:



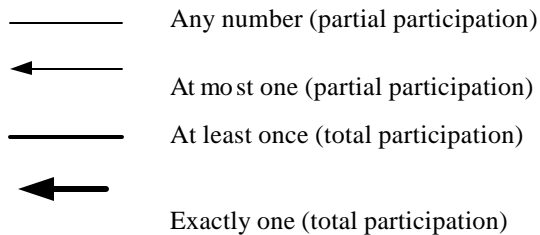
Entity Type:



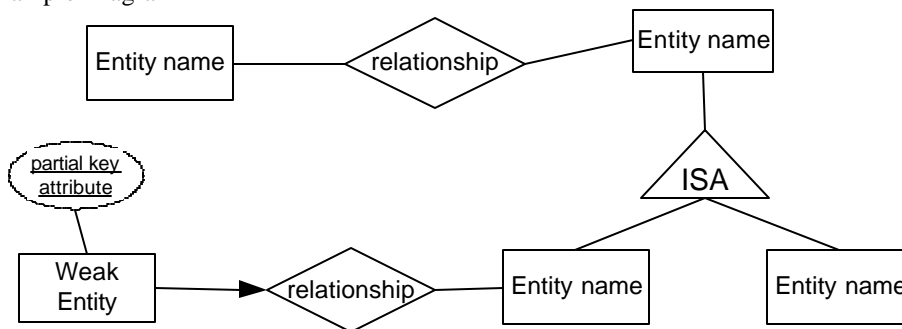
Relationship Type:



Line Type:



4) Example Diagram



5) Some Rules in general

- a. All normal entities must have at least a key
- b. All weak entities must have a partial key
- c. All weak entities must be connected via a relationship to a normal entity with total participation

