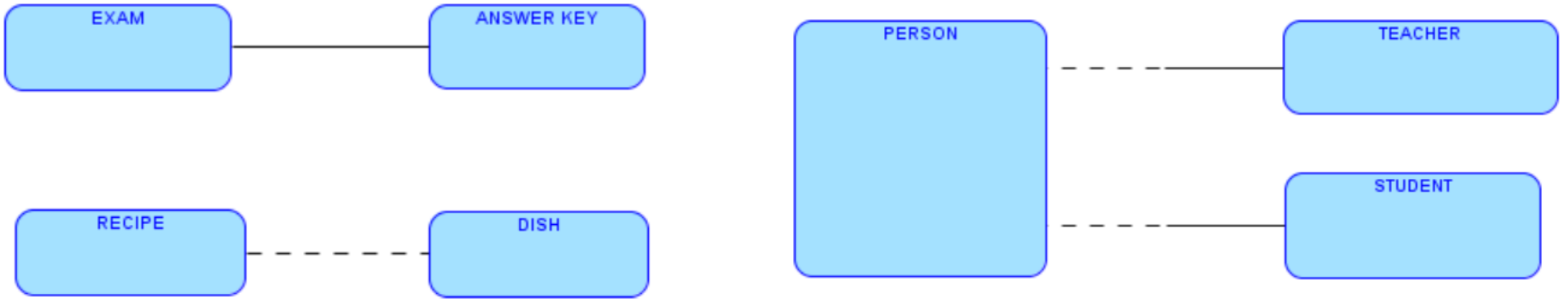
Relationship Types

Can one PERSON own many Books, or only one ?

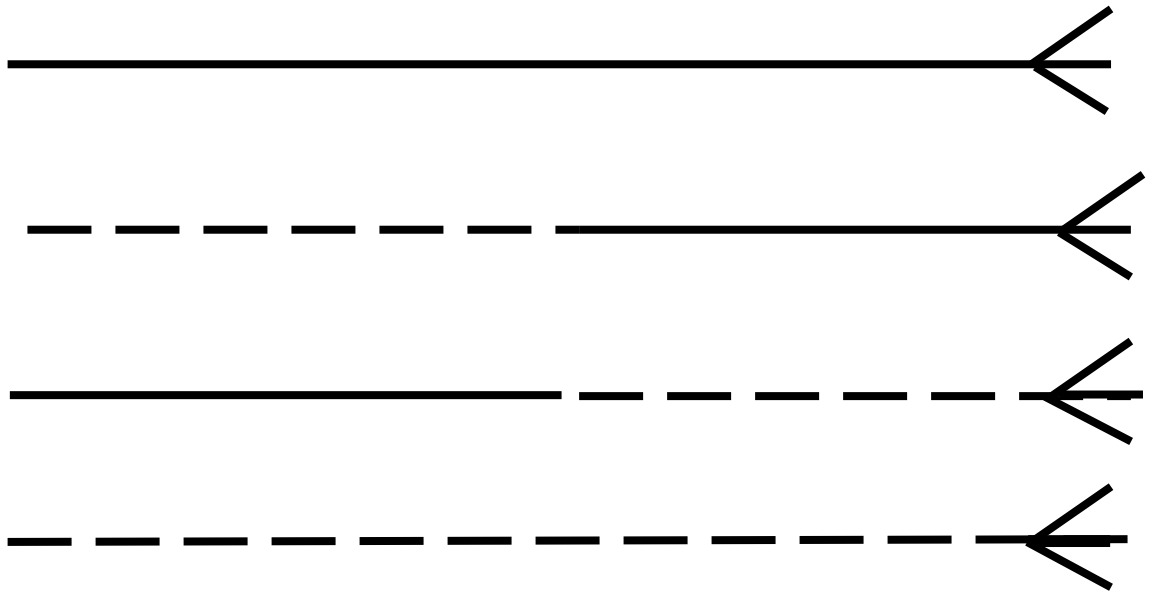
Can one Book be owned by many PERSONs?

Remember, you can avoid future costly mistakes by thinking through the details early on

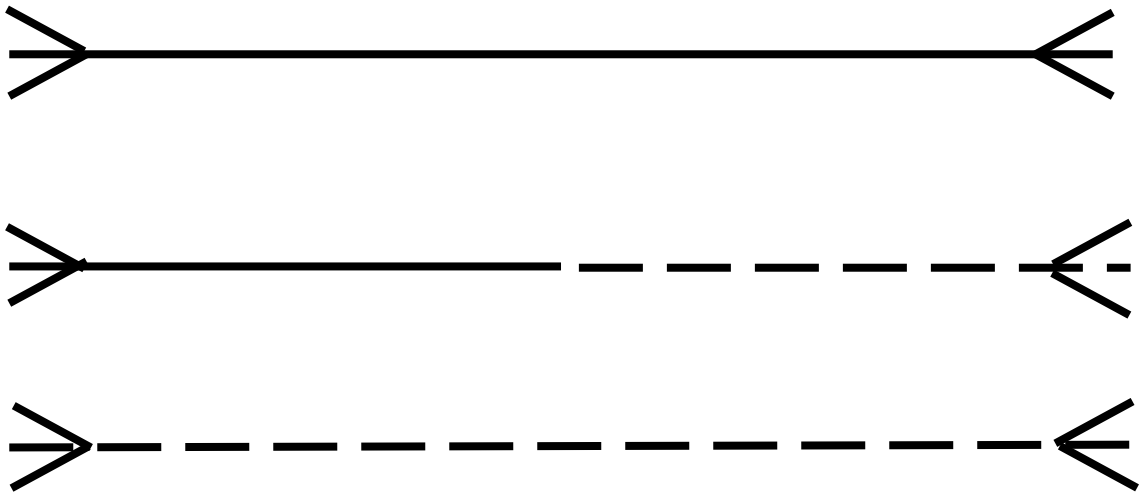
One-to-One Relationships For Roles

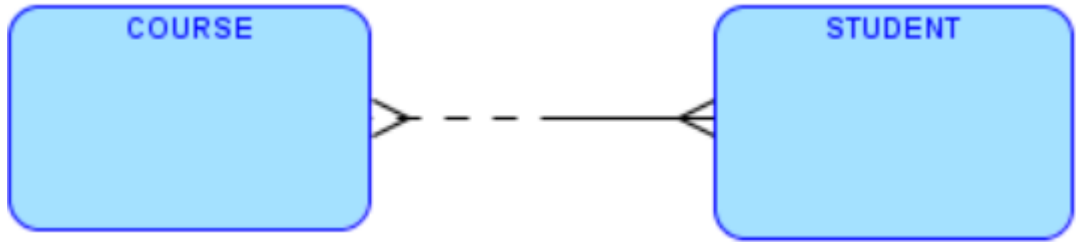


One-to-Many (1:M) Relationships



Many-to-Many (M:M) Relationships

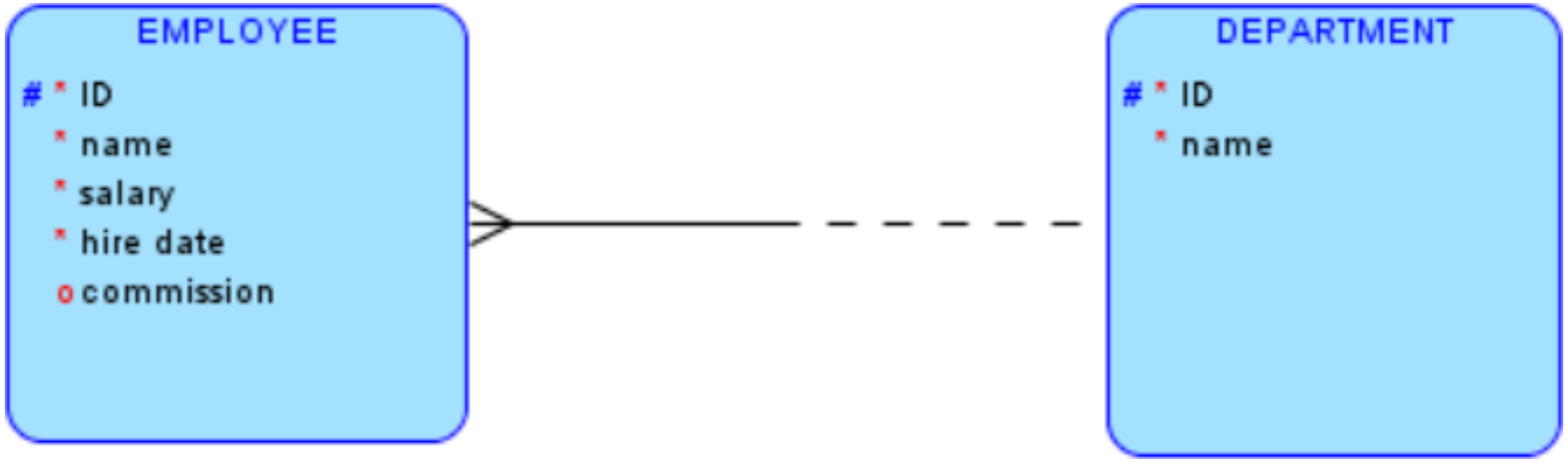




Relationship Transferability

Transferable:

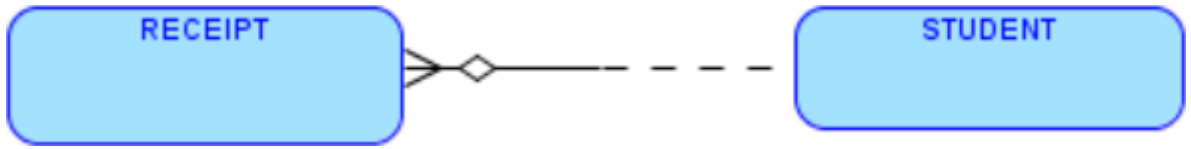
Can an EMPLOYEE be transferred from one DEPARTMENT to another DEPARTMENT?



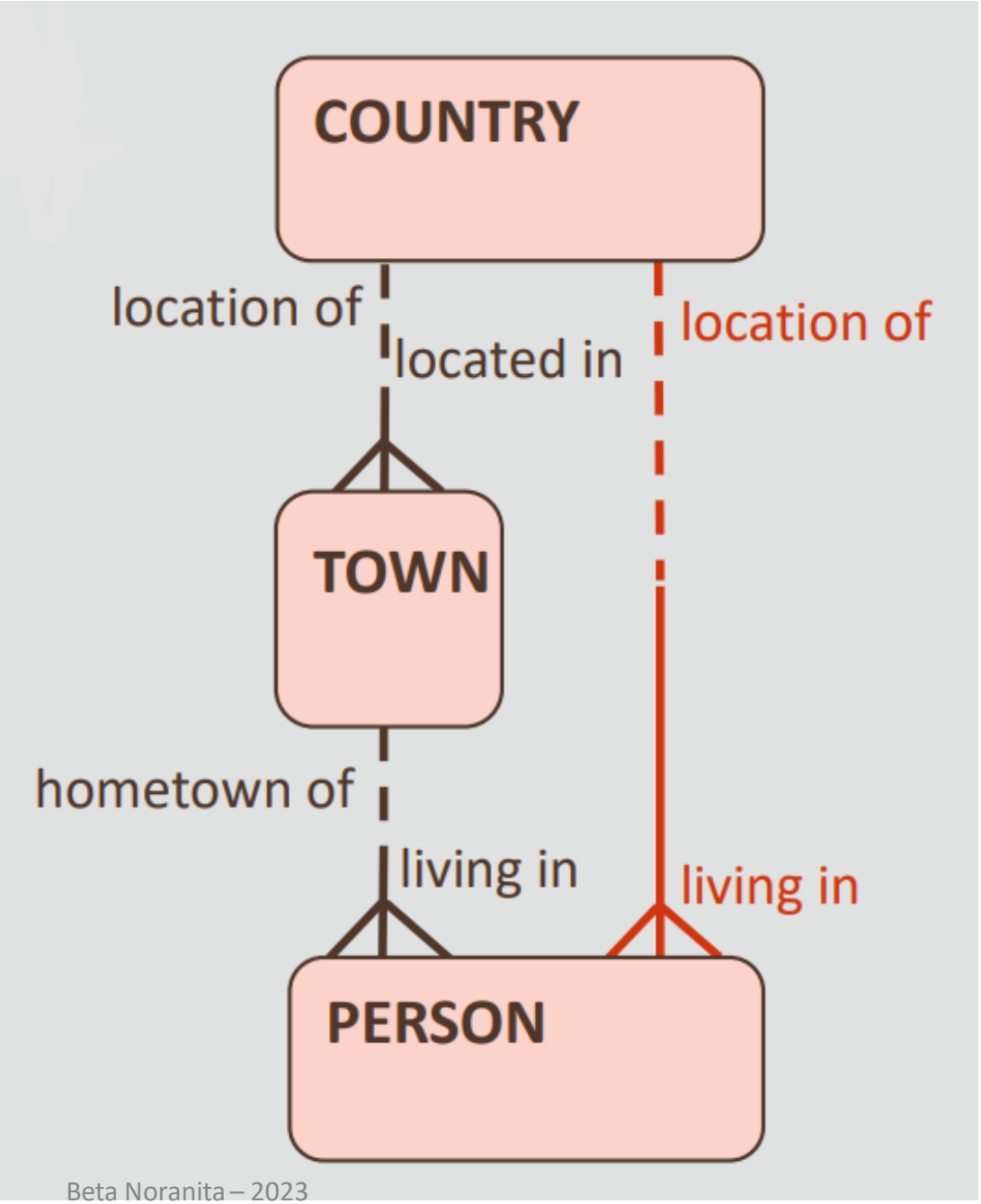
Relationship Transferability

Nontransferable:

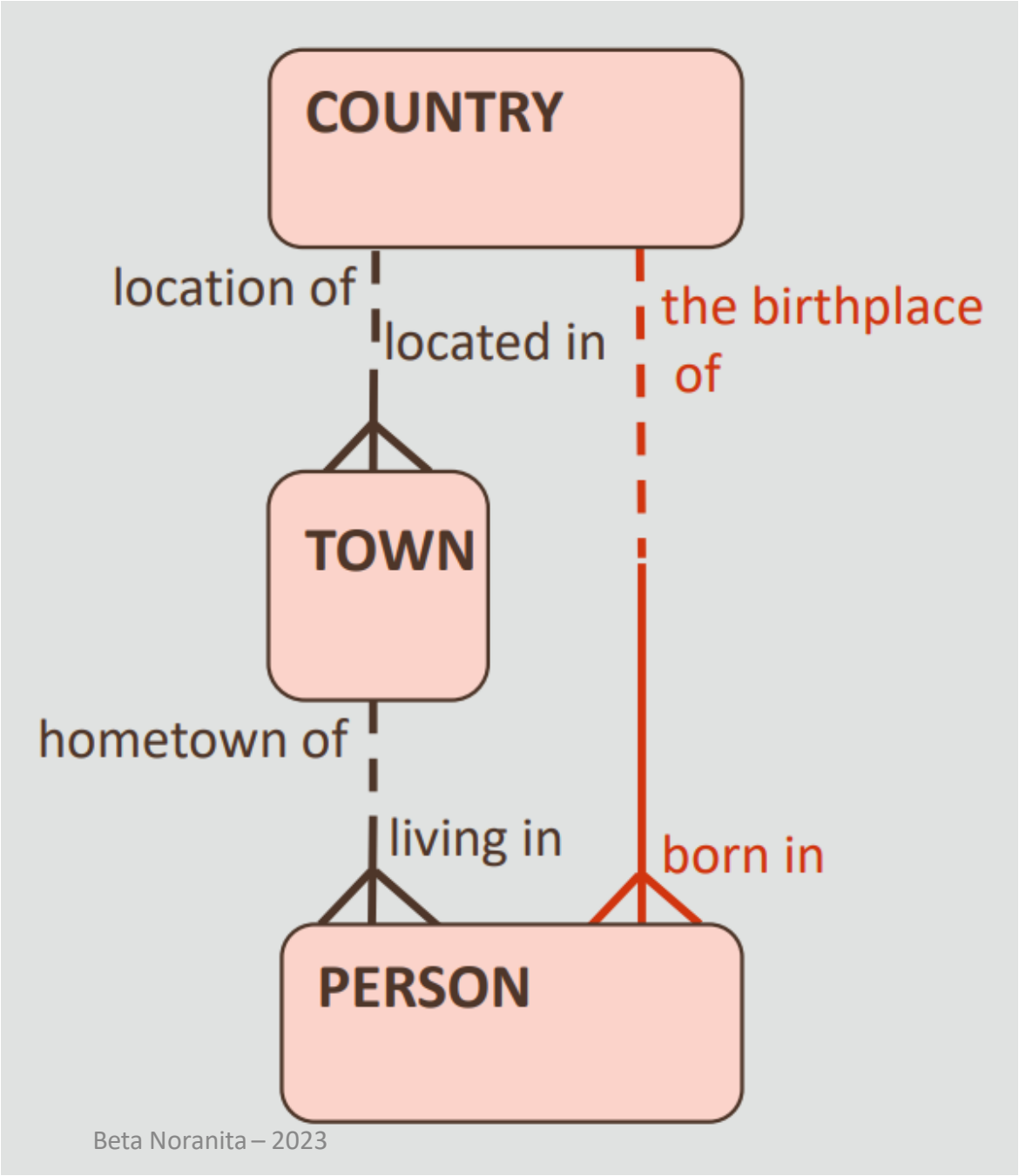
A STUDENT can be issued a RECEIPT for paying tuition fees, taking a certification exam, or purchasing items at the bookstore



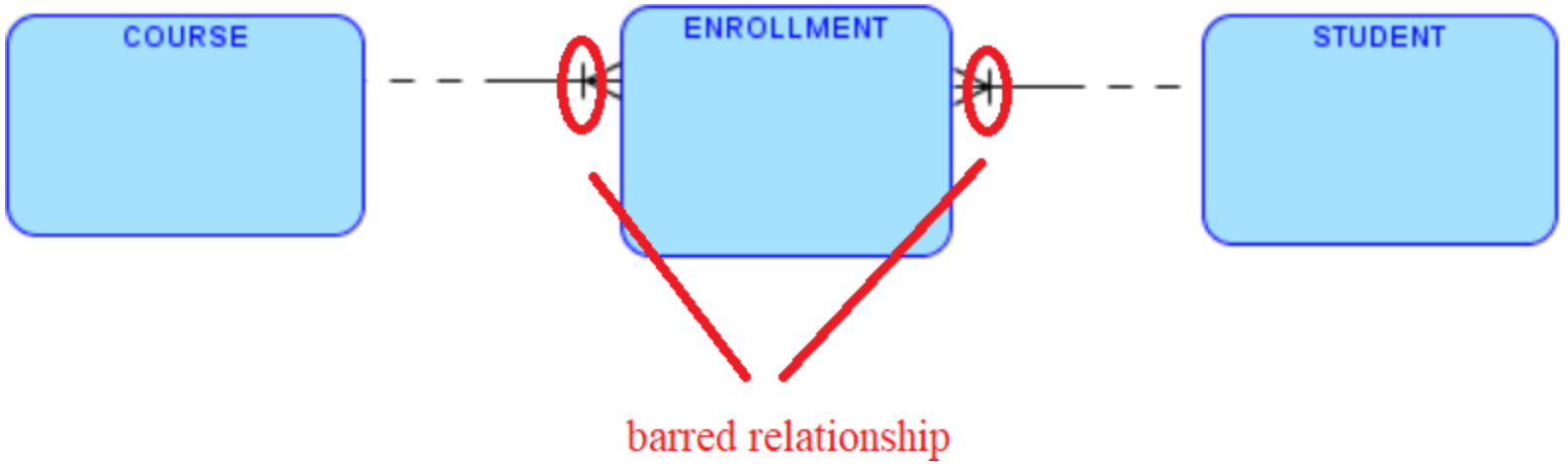
Redundant Relationship



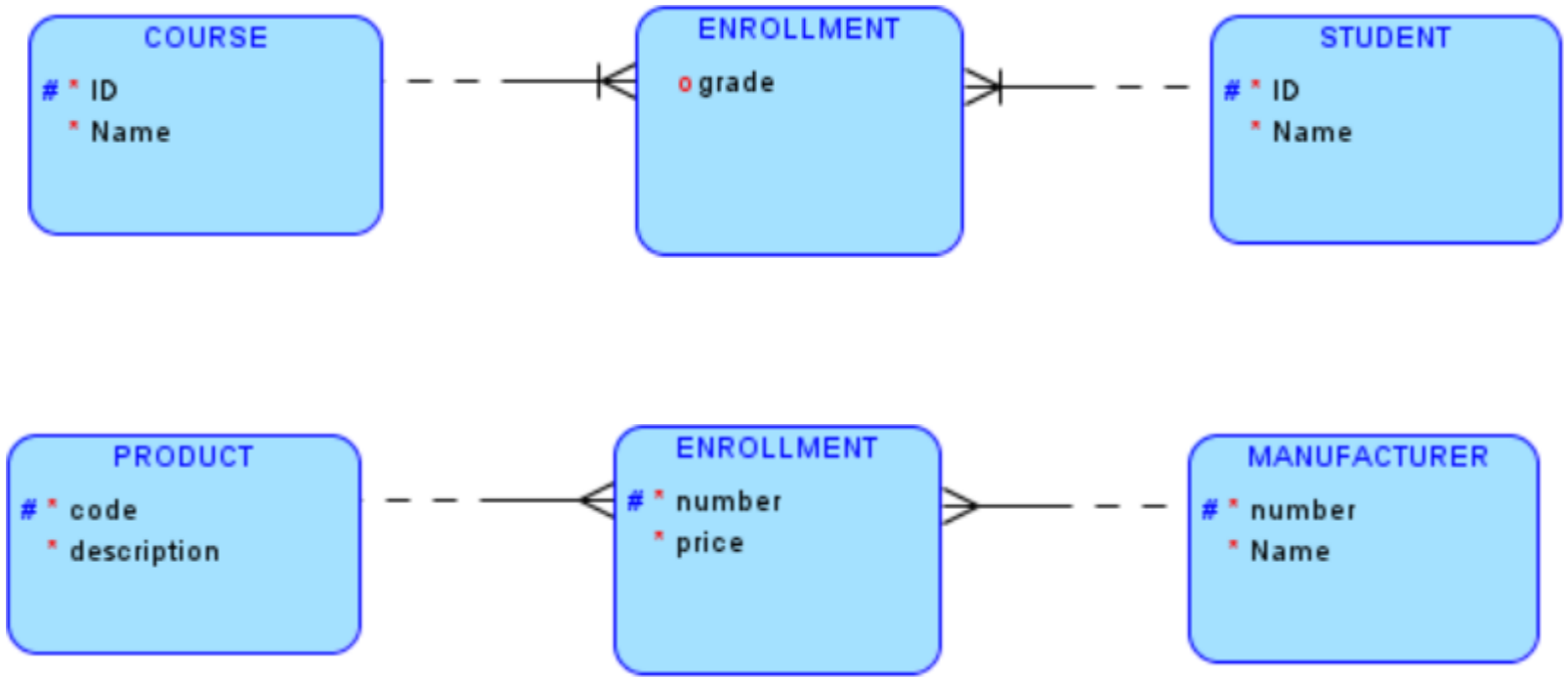
Redundant Relationship



Barred Relationship



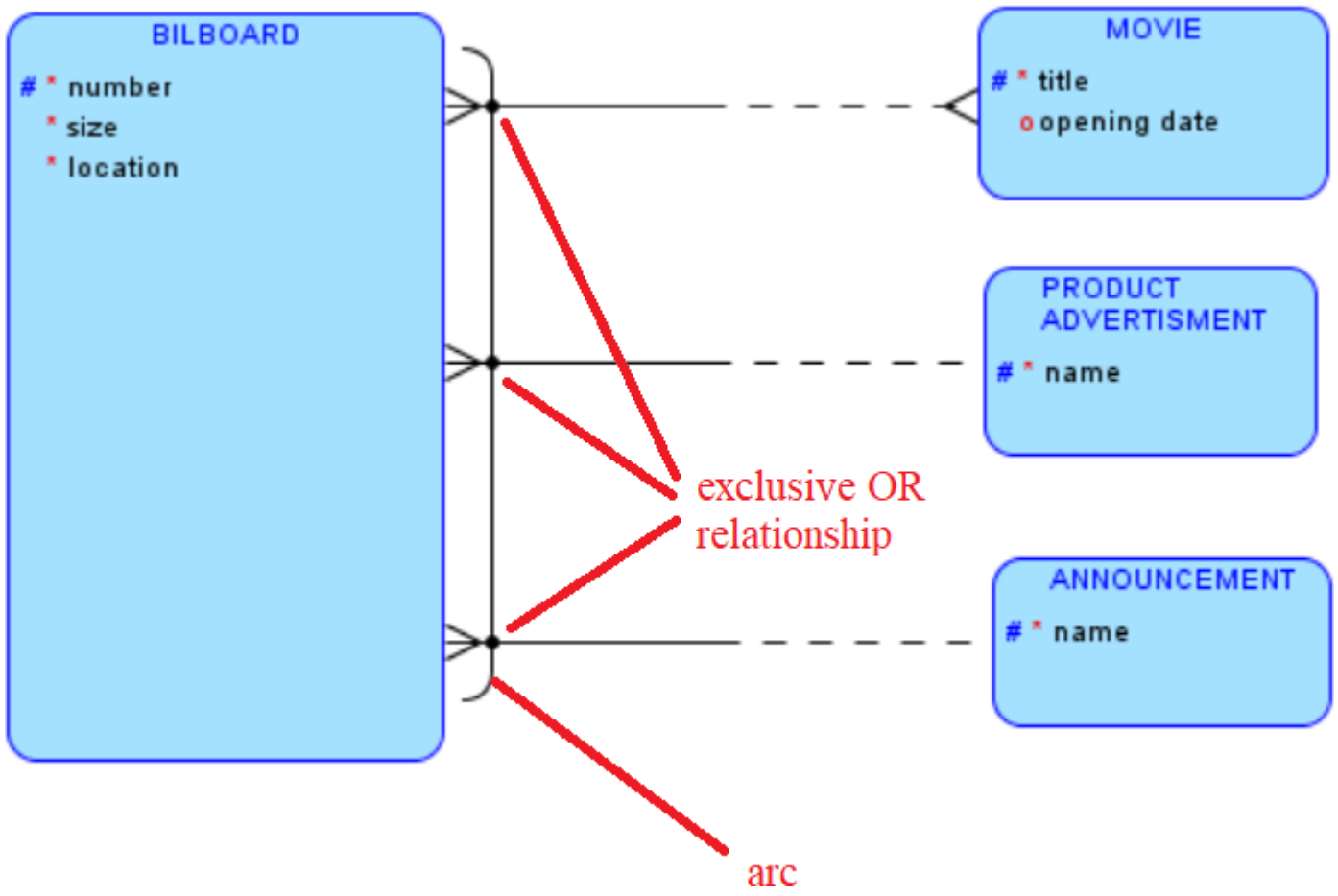
Barred Relationship



ARCs

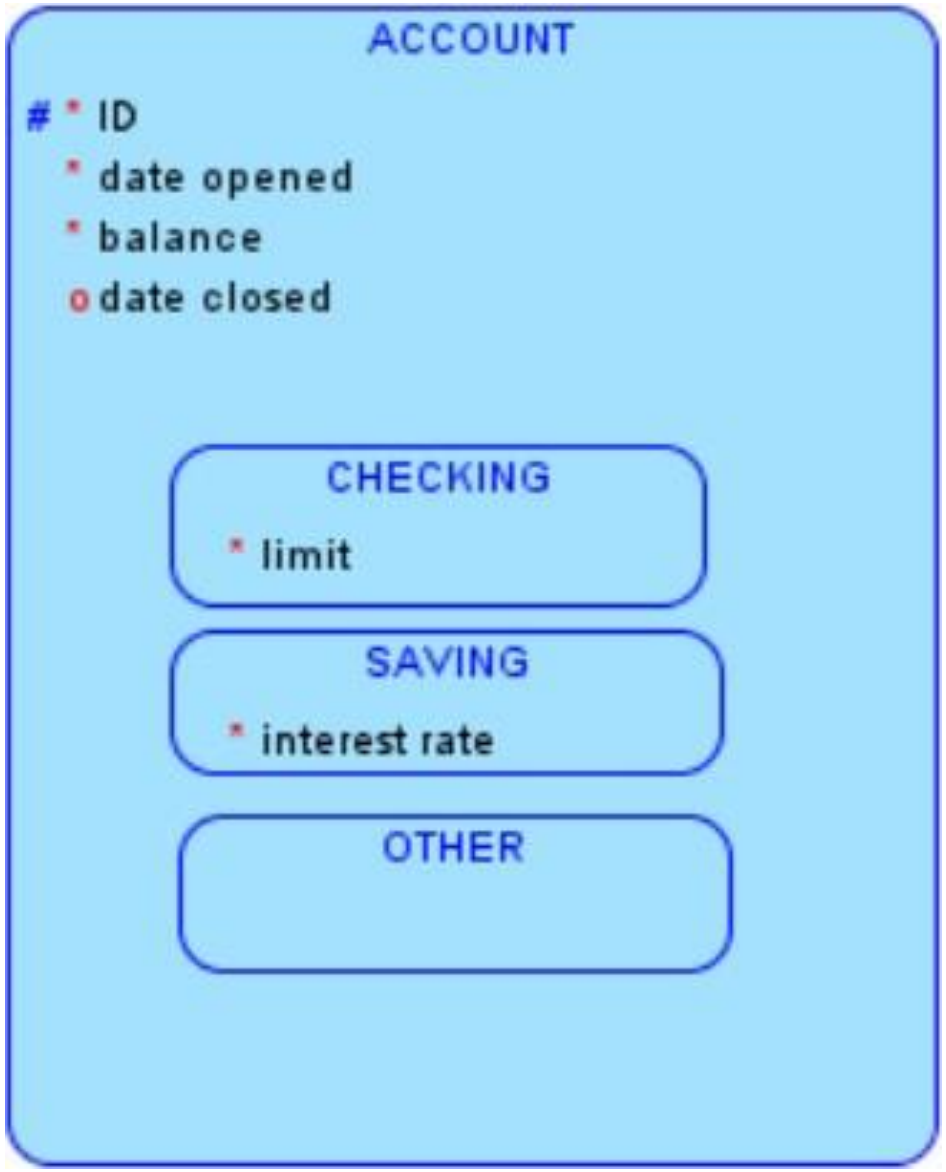
- Mutually exclusive relationships sometimes exist between entities and are also known as Exclusive OR Relationships
- An Exclusive OR relationship is a relationship between one entity and two (or more) other entities where only one of the relationships can exist at a time
- In ERDs, we model this type of relationship with an Arc

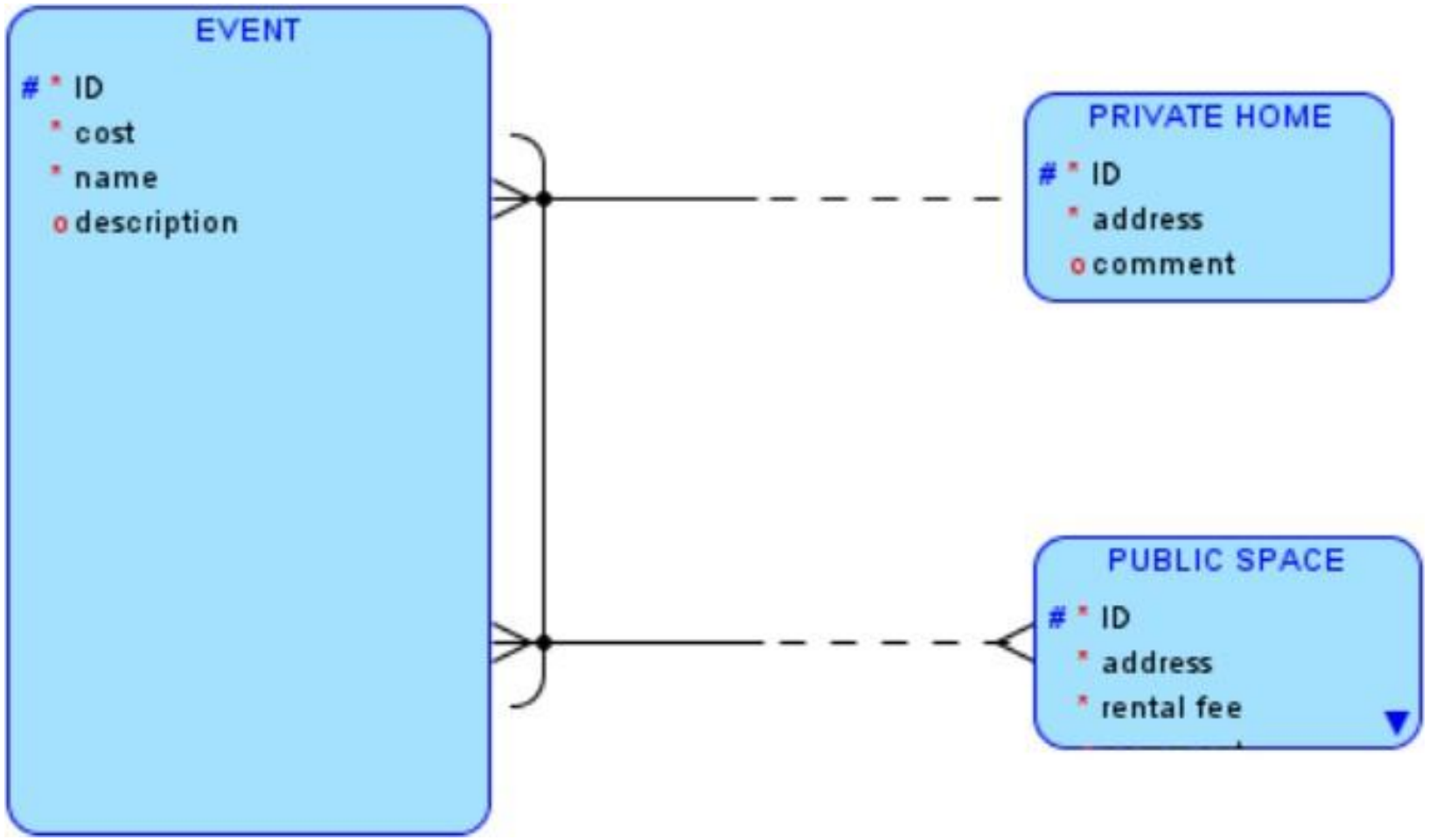
ARCs

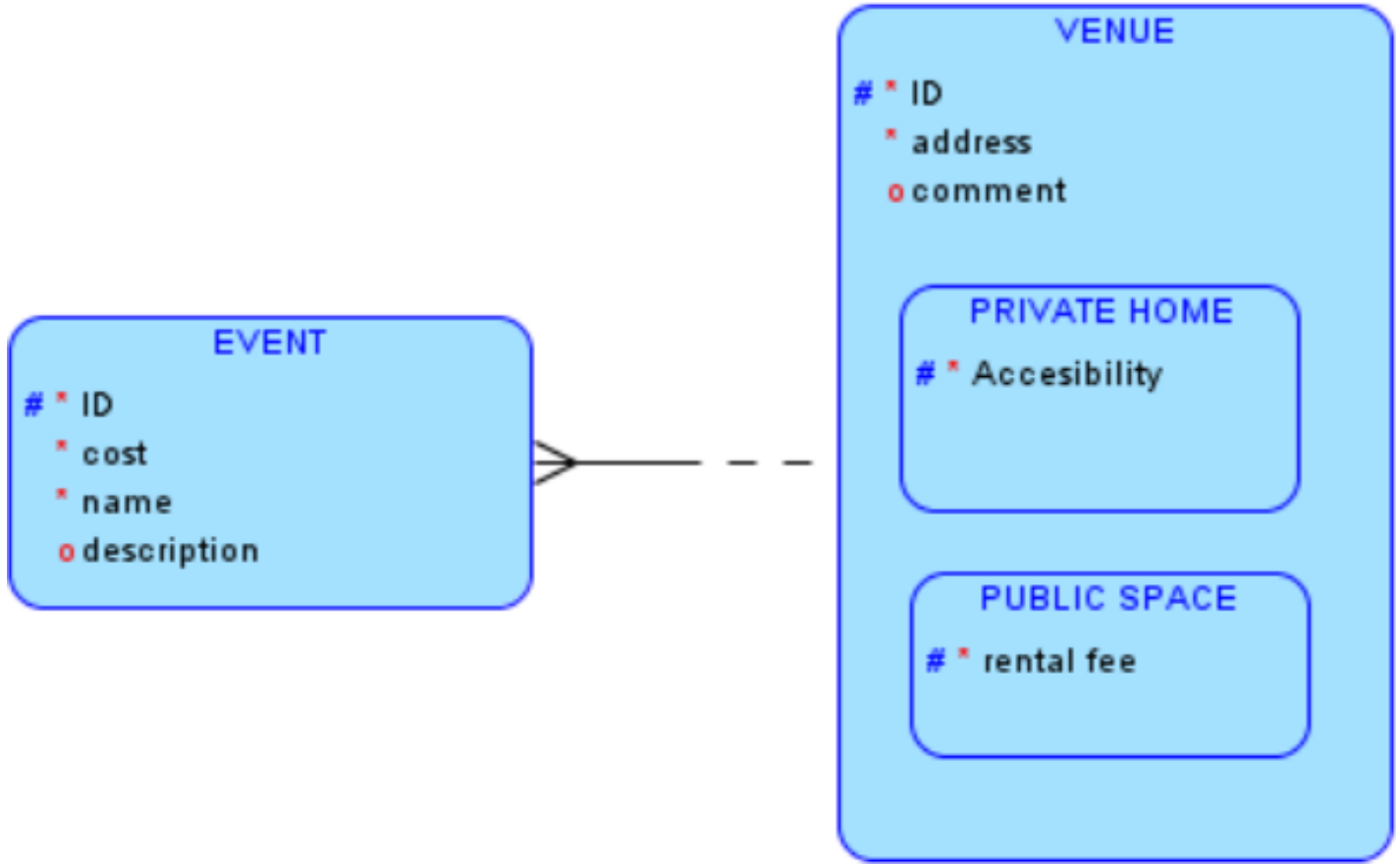

BILBOARD
* number
* size
* location
MOVIE
* title
o opening date
PRODUCT ADVERTISMENT
* name
ANNOUNCEMENT
* name
exclusive OR relationship
arc

ARCs

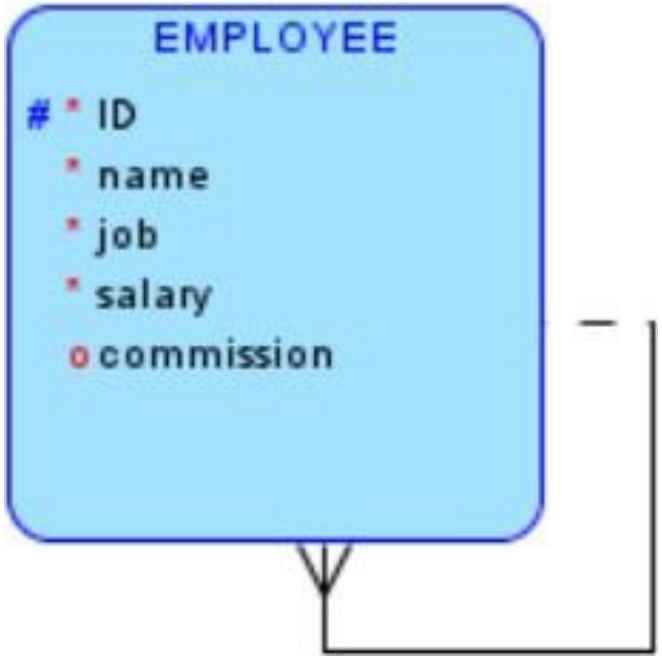
- An arc always belongs to one entity
- Arcs can include more than two relationships
- Not all relationships of an entity need to be included in an arc
- An entity may have several arcs
- An arc should always consist of relationships of the same optionality
- All relationships in an arc must be mandatory or all must be optional
- Relationships in an arc may be of different cardinality, although this is rare


ACCOUNT
* ID
* date opened
* balance
o date closed
CHECKING
* limit
SAVING
* interest rate
OTHER

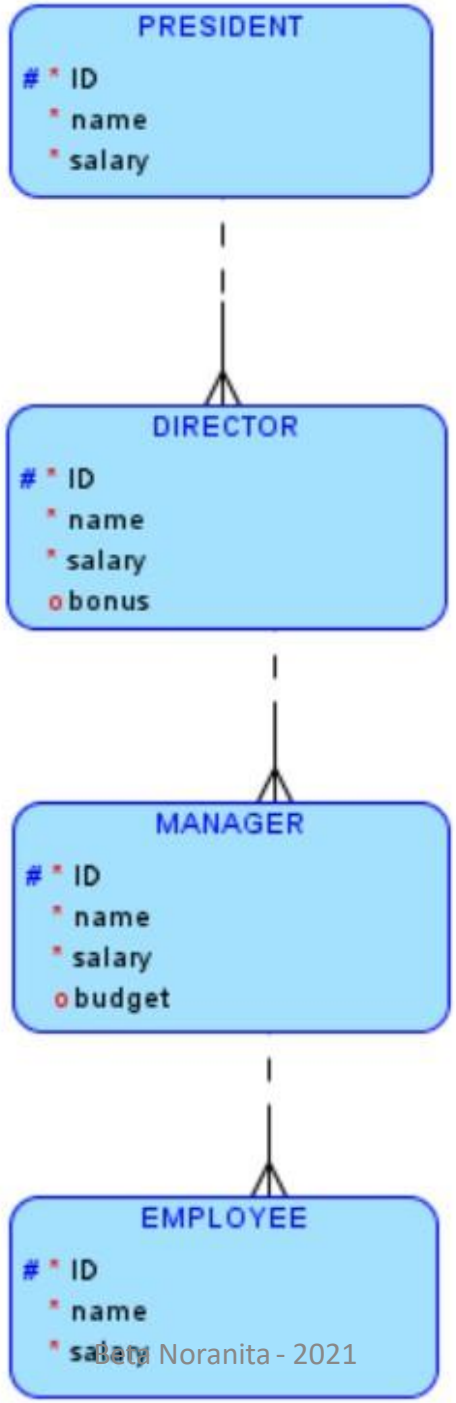

EVENT
* ID
* cost
* name
o description
PRIVATE HOME
* ID
* address
o comment
PUBLIC SPACE
* ID
* address
* rental fee


VENUE
* ID
* address
o comment
PRIVATE HOME
* Accesibility
PUBLIC SPACE
* rental fee
EVENT
* ID
* cost
* name
o description

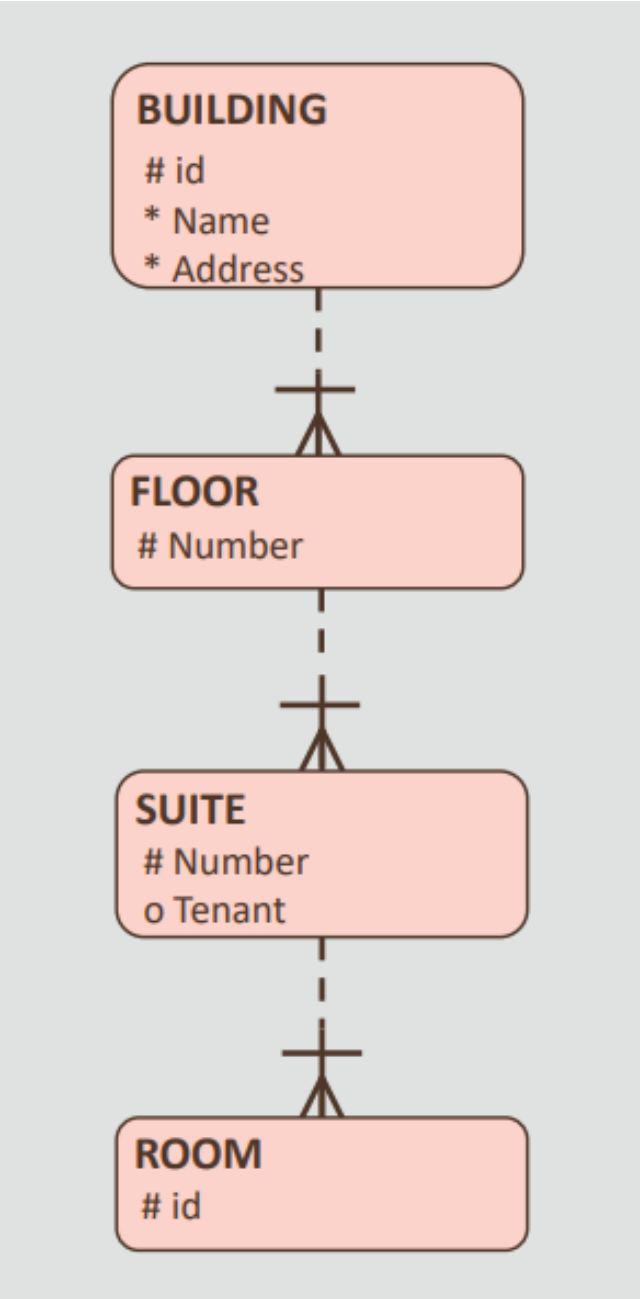
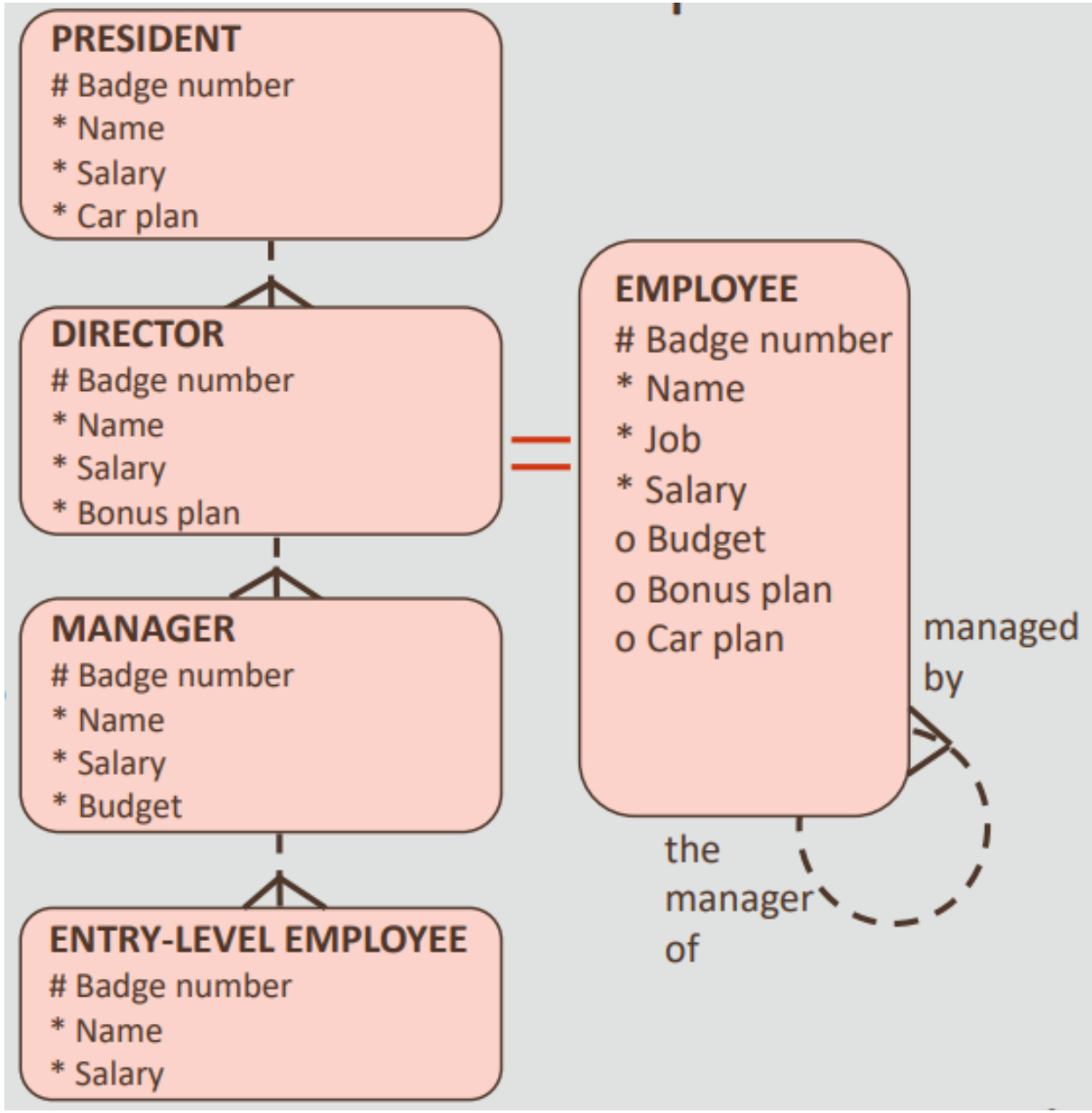
Recursive Relationship



Hierarchy Relationship



Hierarchy Relationship



Hierarchy Versus Recursive Relationship