

CPSC 304: Tutorial #2, Part B

Logical Database Design

Mapping General ER Diagrams to the Relational Model

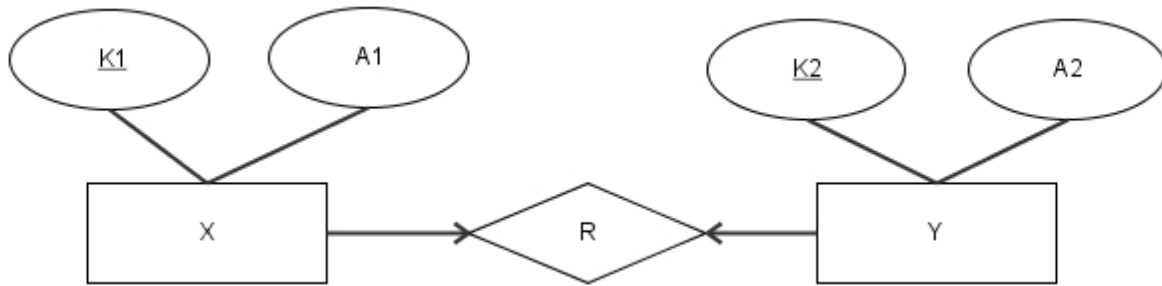
Practice Exercise

General Rules:

- ◆ Translate each entity type to a table.
- ◆ Translate a relationship set into a new table if it is many-to-many.
- ◆ Translate a one-to-many, many-to-one, or one-to-one relationship, adding the appropriate attribute(s) to the *many* side, like in class.
- ◆ Translate attributes in the ER diagram to attributes in tables. Use the same names.
- ◆ Translate keys in the ER diagram to keys in tables.
- ◆ Identify (using underlining or **bold face** or some other clear way): the primary keys, the **foreign keys**, and any other constraints you define.
- ◆ Don't write any SQL DDL (i.e., don't write CREATE TABLE statements).
- ◆ The lines are not bold, unless indicated (i.e., bold in questions 5, 6, and 10).

Provide Answers to the Following Specific Situations: (starting on the next page)

1) 1:1



Here's one sample answer to show you the format we want, and note that you don't have to write any SQL statements to create the tables, for this exercise:

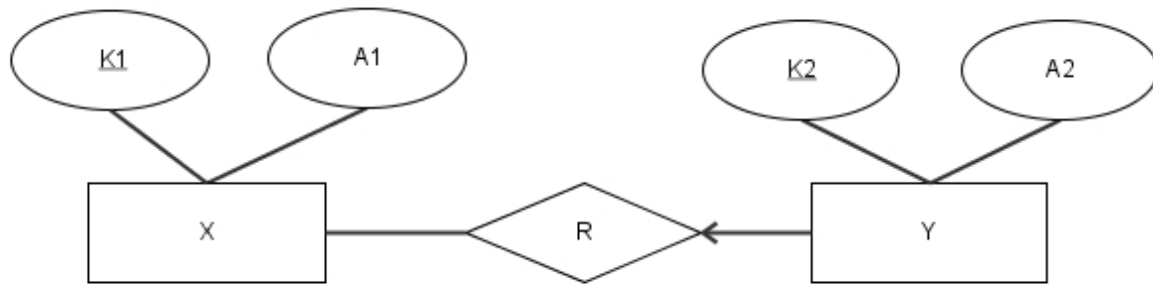
X(K1, **K2**, A1) (K2 needs to be unique)
Y(K2, A2)

We've underlined the keys, and in **bold** we provided the foreign key (instead of bold, it's OK if you provide a note saying what the foreign key should be).

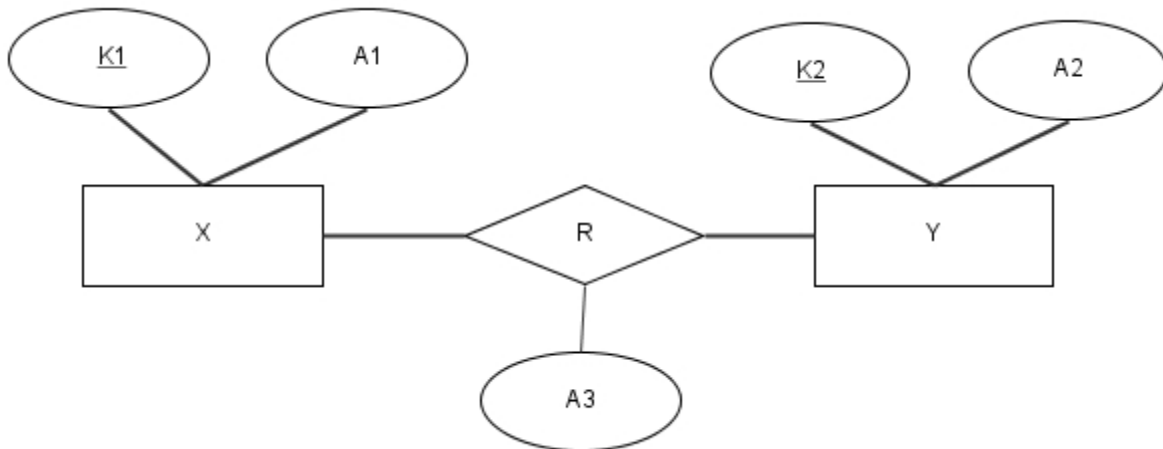
Now, provide another answer for the ER diagram above that's different than the sample answer we just gave. Write your answer here:

Then, continue with the remaining ER diagrams below, providing one solution for each, in a format similar to what you see above.

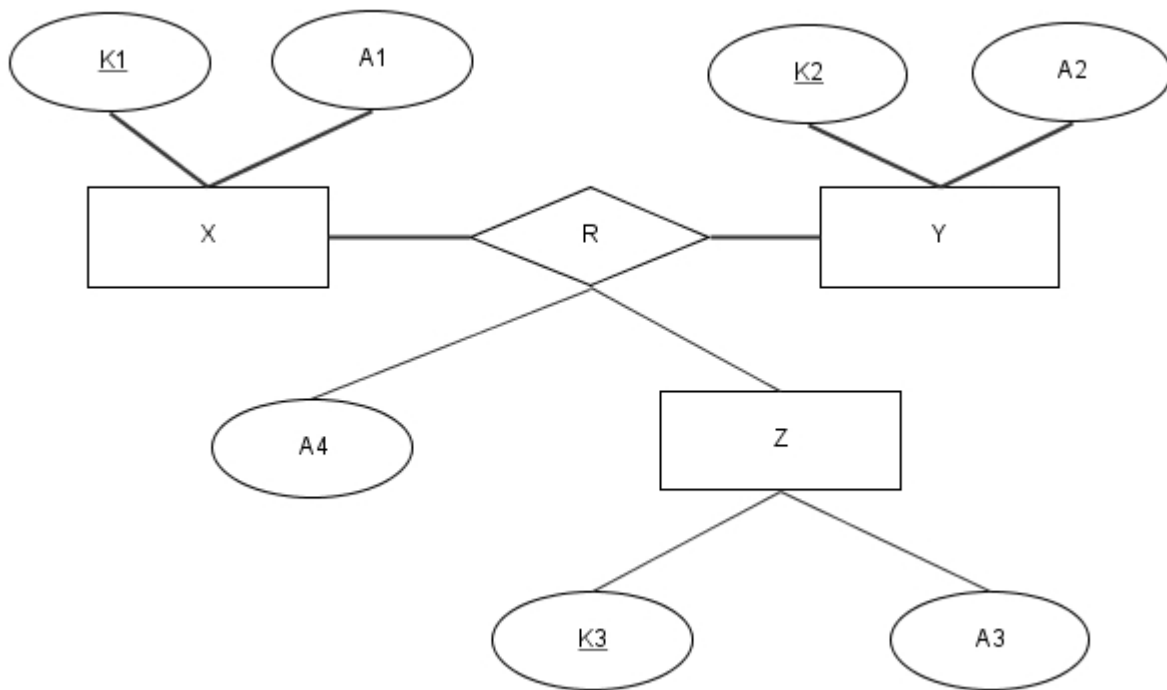
2) 1:M



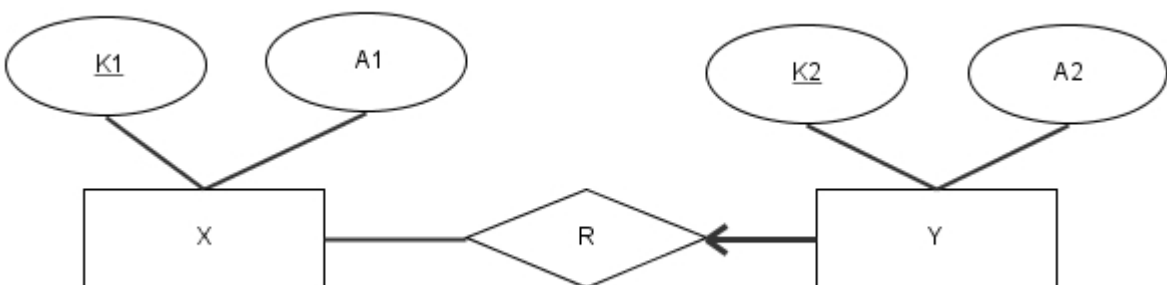
3) M:N (Binary Relationship)



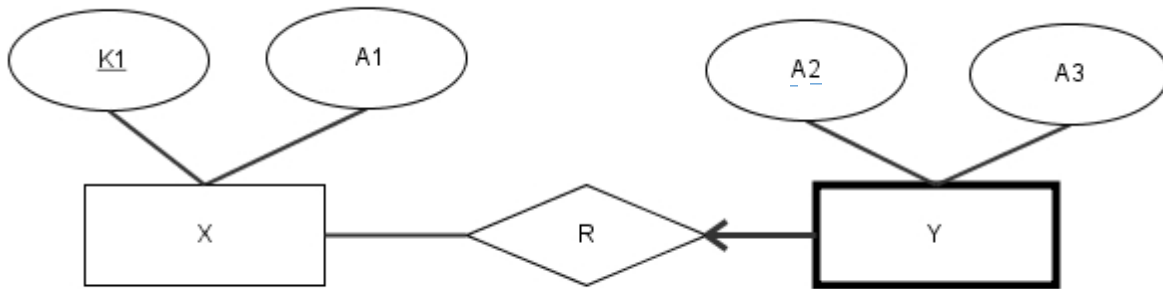
4) M:N (Ternary Relationship)



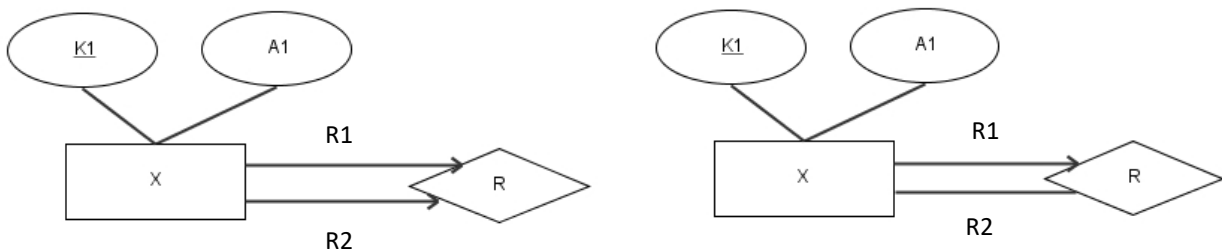
5) 1:M Entity with Total Participation (line with arrow is bold)



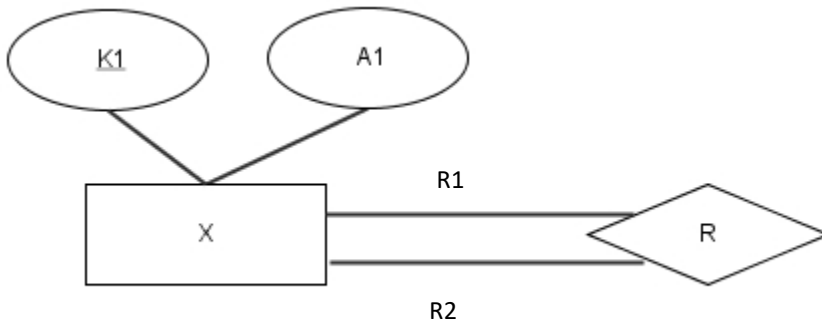
6) 1:M Weak Entity with Total Participation (A2 is the partial key, R should have dark edges)



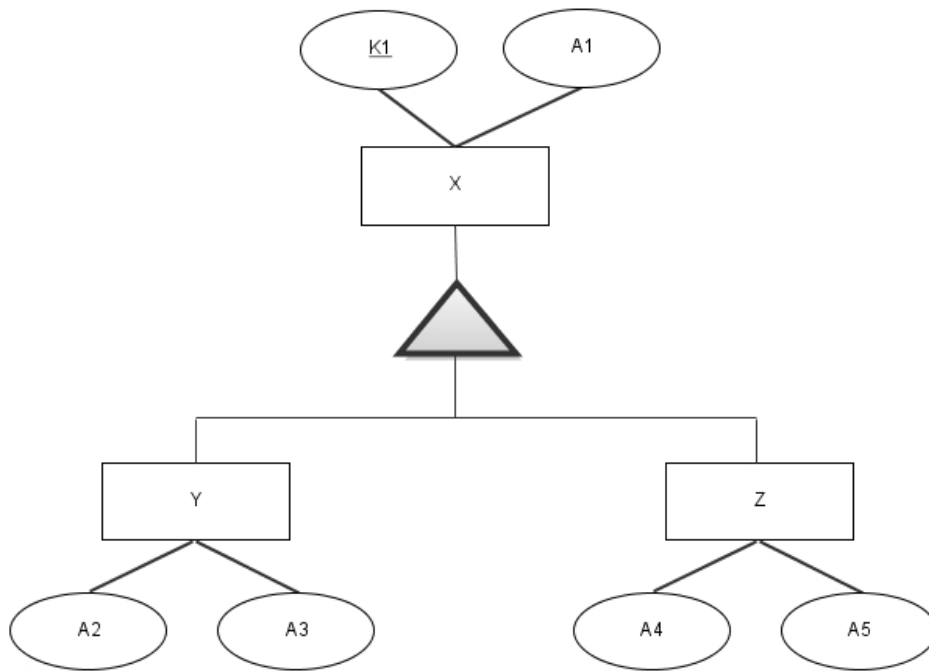
7) 1:1 and 1:M Unary Relationship (R1 and R2 are the role names) – these are 2 different diagrams



8) M:N Unary Relationship



9) ISA 1 (regular ISA without total participation)



10) ISA 2 (the “d” means disjoint (i.e., no Y can also be a Z, and vice-versa) (line to ISA is bold)
Y and Z cover X

