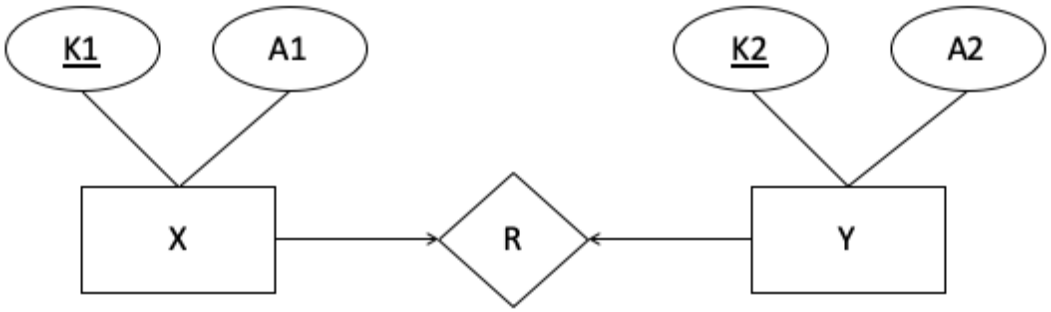
CPSC 304: Introduction to Relational Databases

Tutorial #2: Logical Database Design

1) 1:1

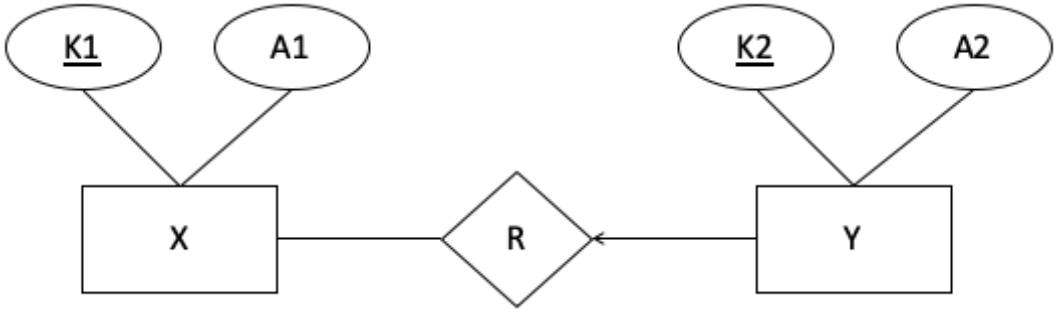


X(K1, **K2**, A1) (K2 needs to be unique)
Y(K2, A2)

or

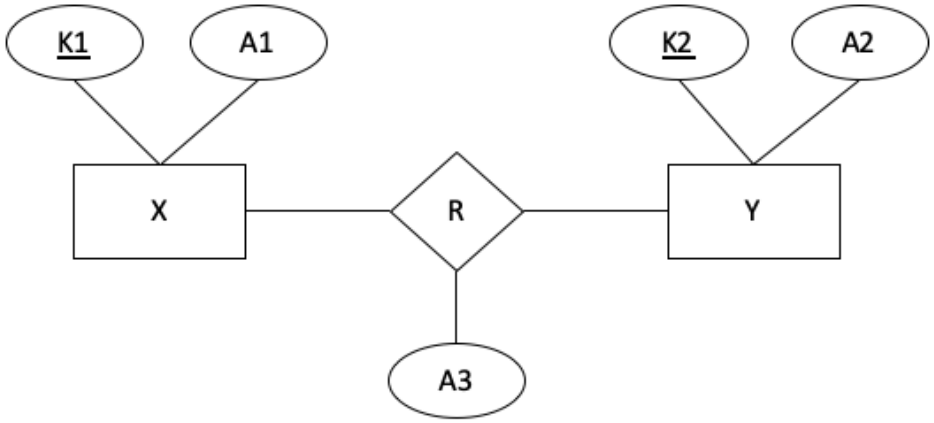
X(K1, A1)
Y(K2, **K1**, A2) (K1 needs to be unique)

2) 1:M



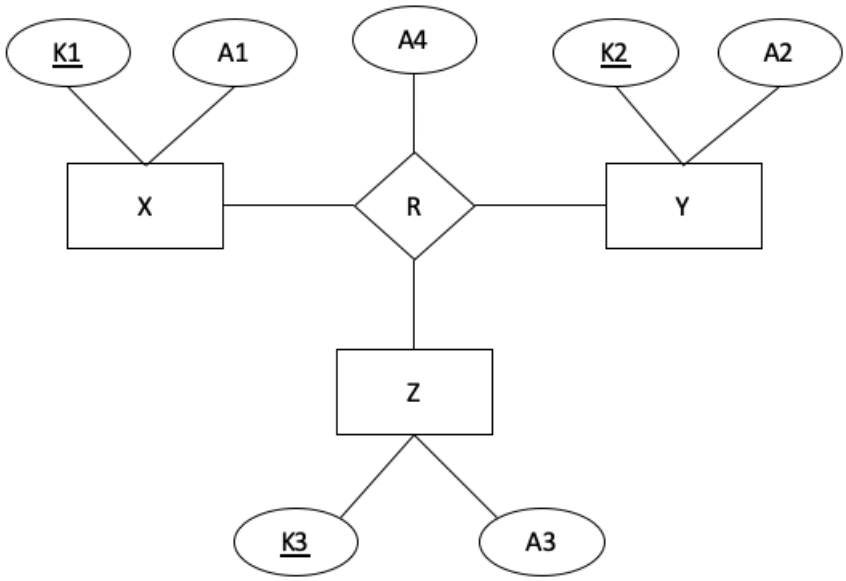
X(K1, A1)
Y(K2, **K1**, A2)

3) M:N (Binary Relationship)



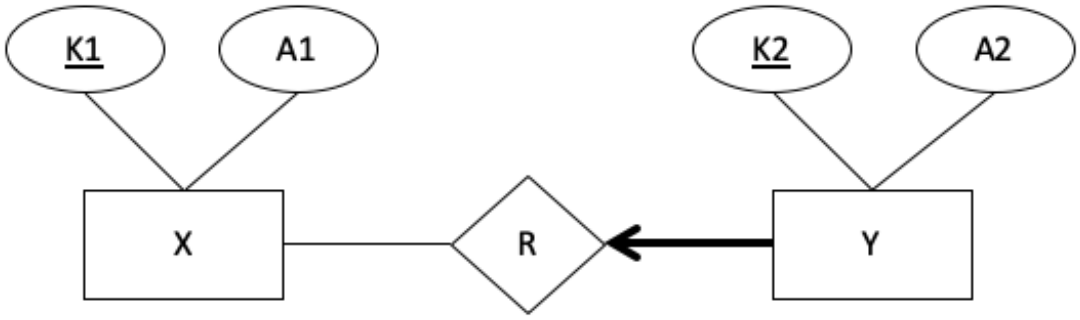
X(K1, A1)
Y(K2, A2)
R(**K1**, **K2**, A3)

4) M:N (Ternary Relationship)



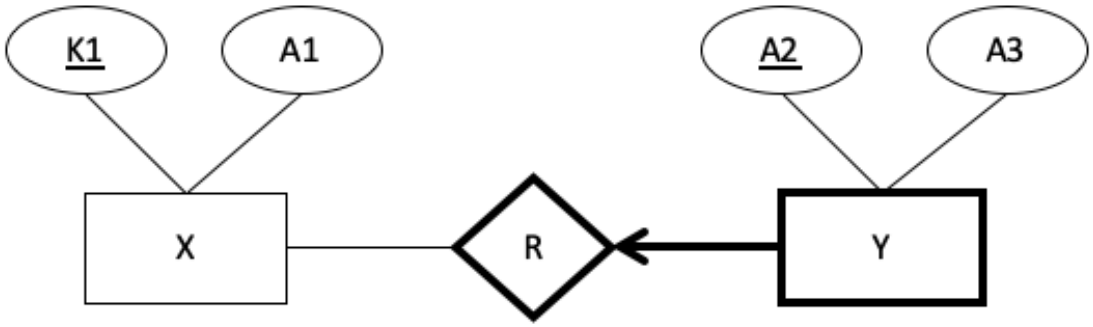
X(K1, A1)
Y(K2, A2)
Z(K3, A3)
R(**K1**, **K2**, **K3**, A4)

5) 1:M Entity with Total Participation



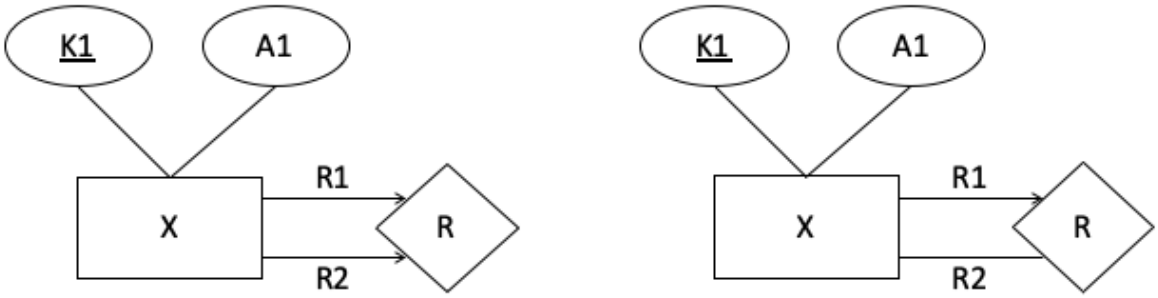
X(K1, A1)
Y(**K1**, K2, A2) (K1 cannot be null)

6) 1:M Weak Entity with Total Participation (assume that A2 is the partial key)



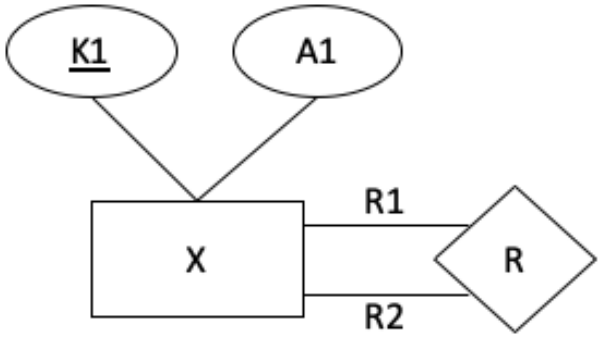
X(K1, A1)
Y(**K1**, A2, A3)

7) 1:1 and 1:M Unary Relationship



X(K1, A1, **K2**) (if it is 1:1, then we require K2 to be unique) OR
X(R1-K1, A1, **R2-K1**) (if it is 1:1, then we require R2-K1 to be unique)

8) M:N Unary Relationship

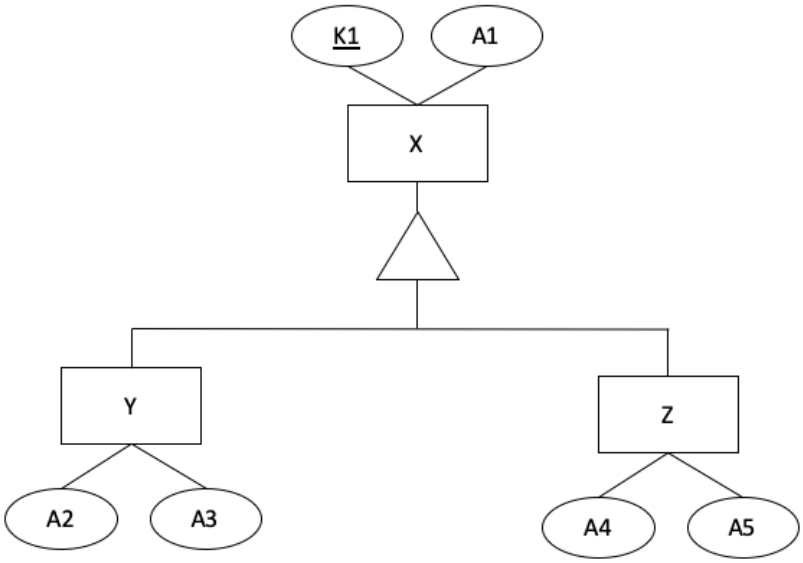


X(K1, A1)
R(**K1**, **K2**)

OR

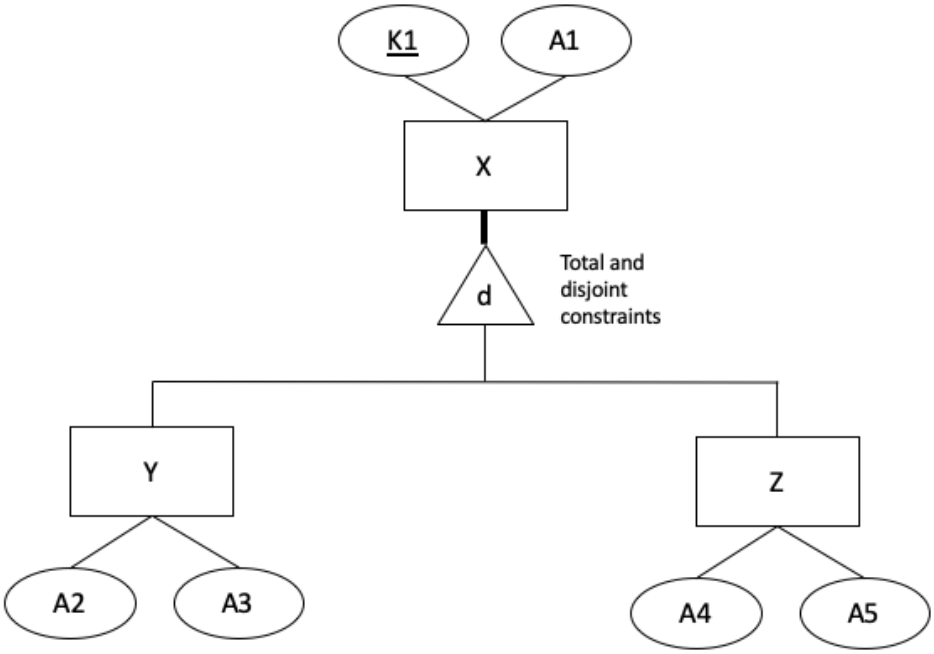
X(R1-K1, A1)
R(**R1-K1**, **R2-K1**)

9) ISA 1



X(K1, A1)
Y(**K1**, A2, A3)
Z(**K1**, A4, A5)

10) ISA 2 (the "d" means disjoint)



Y(K1, A1, A2, A3)
Z(K1, A1, A4, A5)