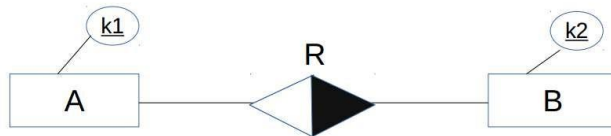


## Summary how to convert ER into RM

PK: Primary Key (Clave primaria)

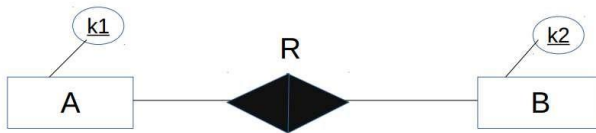
FK: Foreign Key (Clave ajena)

### Binarias



B (k2, k1)  
Pk (k2)  
Fk (k1) → A

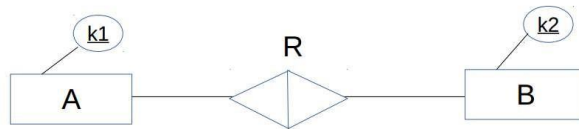
A (k1)  
Pk (k1)



A (k1)  
Pk (k1)

B (k2)  
Pk (k2)

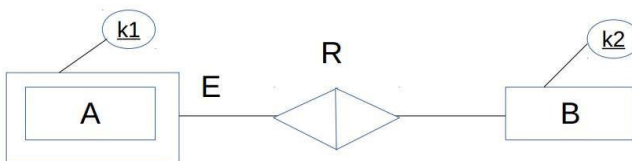
R (k1, k2)  
Pk (k1, k2)  
Fk (k1) → A  
Fk (k2) → B



A (k1)  
Pk (k1)

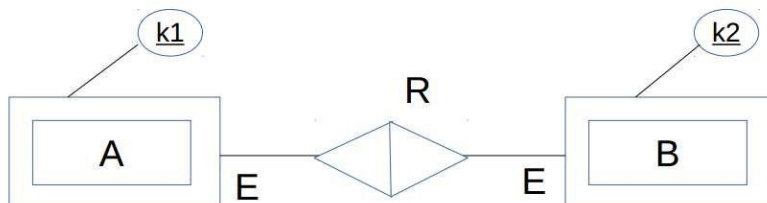
B (k2)  
Pk (k2)

R (k1, k2)  
Pk (k1)  
AltK (k2)  
Fk (k1) → A  
Fk (k2) → B

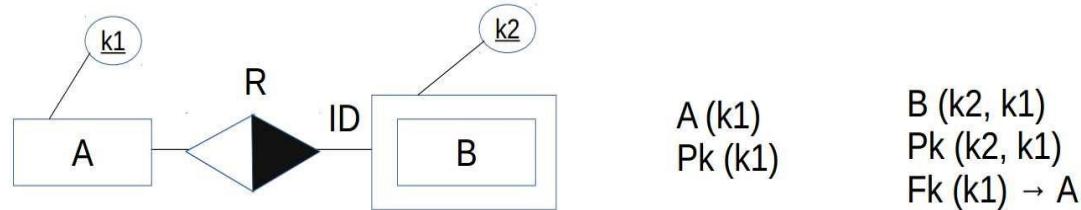
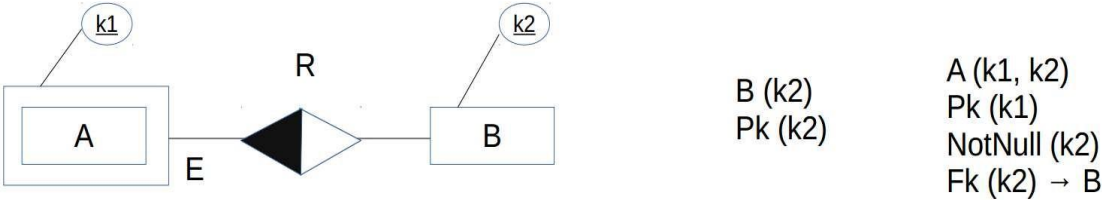


A (k1, k2)  
Pk (k1)  
AltK (k2)  
Fk (k2) → B

B (k2)  
Pk (k2)

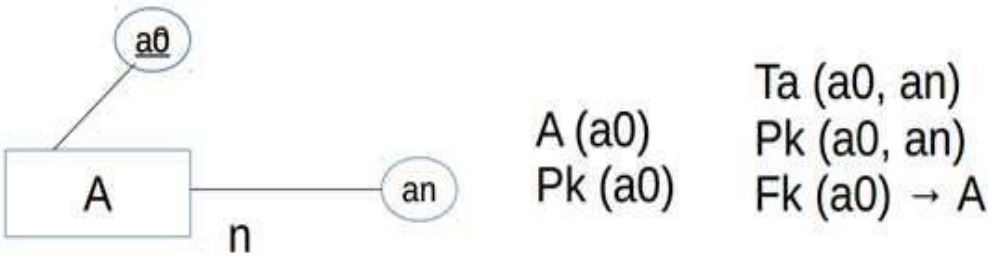


R (k1, k2)  
Pk (k1)  
AltK (k2)



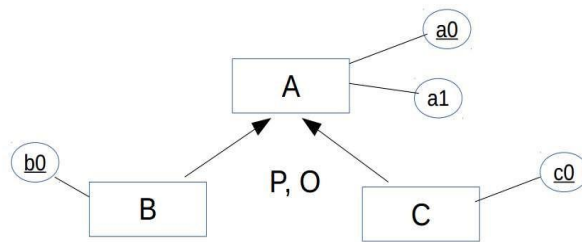
**Multivaluados**

---



**Generalizaciones / Especificaciones**

---



A (a0, a1)  
Pk (a0)

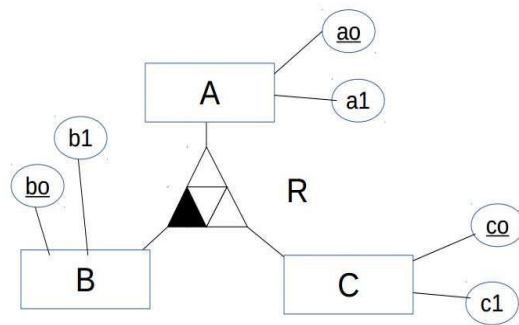
B (a0, b0)  
Pk(a0)  
Fk(a0) → A

C (a0, c0)  
Pk (00)  
Fk(a0) → A

\*

The RM cannot represent T, D relationship ----> Semantic Lost

### Ternarias

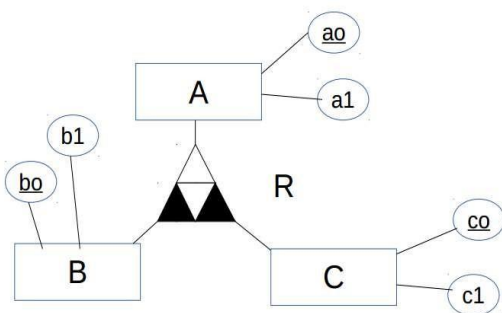


A (a0, a1)  
Pk (a0)

R (a0, b0, c0)  
Pk (a0, b0)  
AltK (b0, c0)  
Fk(a0) → A  
Fk(b0) → B  
Fk(c0) → C

B (b0, b1)  
Pk (b0)

C (c0, c1)  
Pk (c0)

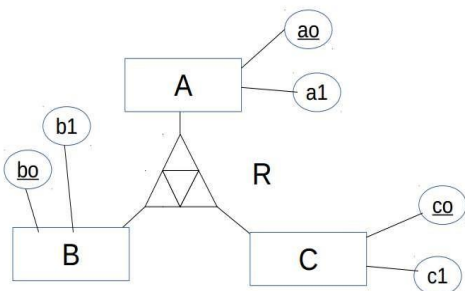


A (a0, a1)  
Pk (a0)

R (a0, b0, c0)  
Pk (b0, c0)  
NotNull (a0)  
Fk(a0) → A  
Fk(b0) → B  
Fk(c0) → C

B (b0, b1)  
Pk (b0)

B (c0, c1)  
Pk (c0)



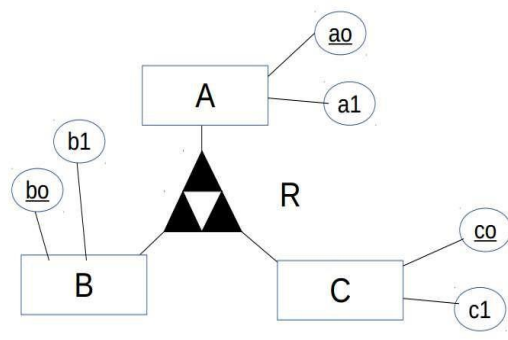
A (a0, a1)  
Pk (a0)

B (b0, b1)  
Pk (b0)

C (c0, c1)  
Pk (c0)

R (a0, b0, c0)  
Pk (a0, b0)  
AltK (a0, c0)  
AltK (b0, c0)

Fk(a0) → A  
Fk(b0) → B  
Fk(c0) → C



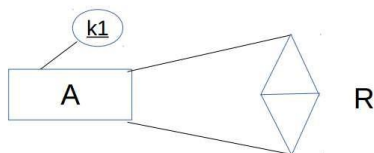
$A(a0, a1)$   
 $Pk(a0)$

$B(b0, b1)$   
 $Pk(b0)$

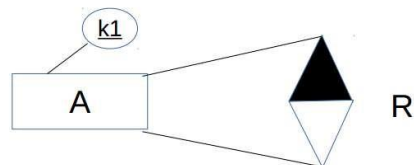
$C(c0, c1)$   
 $Pk(c0)$

$R(a0, b0, c0)$   
 $Pk(a0, b0, c0)$   
 $Fk(a0) \rightarrow A$   
 $Fk(b0) \rightarrow B$   
 $Fk(c0) \rightarrow C$

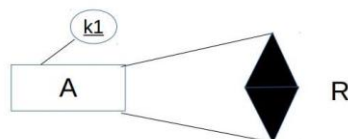
## Relaciones Reflexivas



$A(k1)$   
 $Pk(k1)$   
 $R(k1, k1x)$   
 $AltK(k1x)$   
 $Fk(k1) \rightarrow A$   
 $Fk(k1x) \rightarrow A$



$A(k1, k1x)$   
 $Pk(k1)$   
 $Fk(k1x) \rightarrow A$



$R(k1, k1x)$   
 $Pk(k1, k1x)$   
 $Fk(k1) \rightarrow A$   
 $Fk(k1x) \rightarrow A$   
 $A(k1)$   
 $Pk(k1)$

## Pérdidas Semánticas



