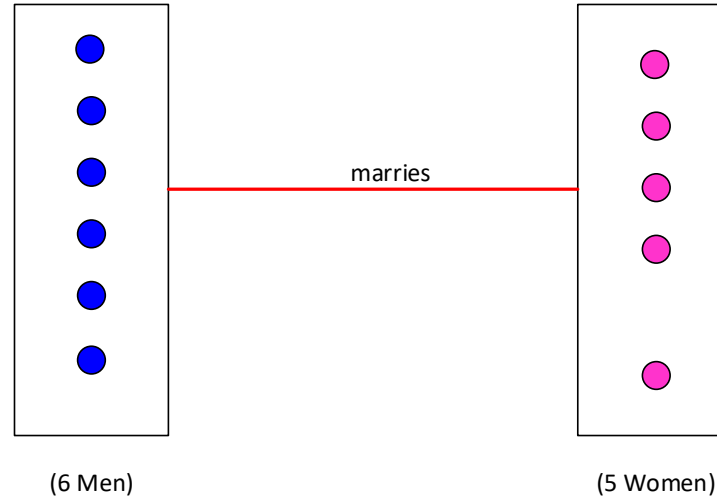# Entity Relationship Model/Diagram

-More example

Connectivity and Participation

Table: **MAN**

Table: **WOMAN**
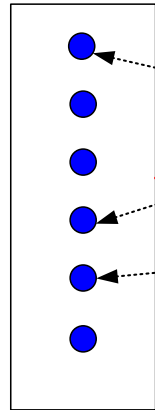

(6 Men)

(5 Women)

marries

Business rule:
A man may marry only one woman and a woman may marry only one man
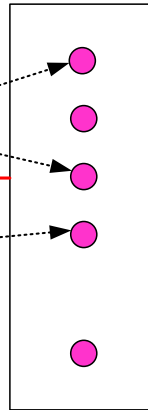
Connectivity and Participation

Table: **MAN**

Table: **WOMAN**

marries

(6 Men)

(5 Women)

So far, we have 3 marriages here

Table	Max relationships	Min relationships
a man has	1	0
a woman has	1	0

Connectivity

Participation

Connectivity and Participation

Table: **MAN**

Table: **WOMAN**

A man can marry maximum 1 woman

A man can be unmarried!

marries

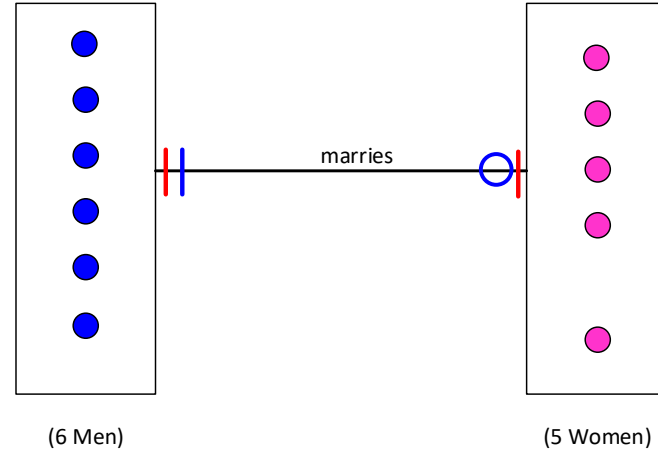A woman can be unmarried!

A woman can marry maximum 1 man
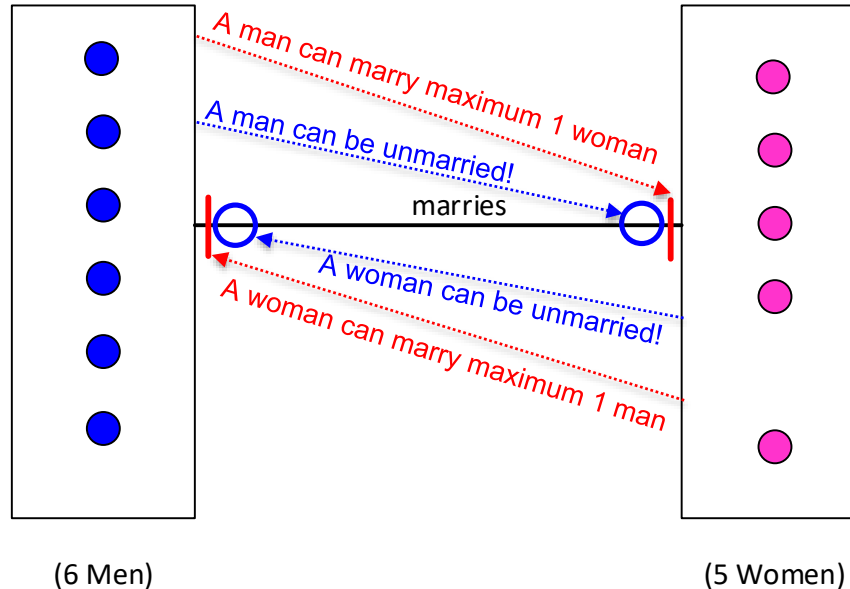
(6 Men)

(5 Women)

Connectivity and Participation

- Add a rule: No woman can be unmarried

Table: **MAN**

Table: **WOMAN**

marries

(6 Men)

(5 Women)

So, now we have 5 marriages here

Table: **MAN**

Table: **WOMAN**

marries

(6 Men)

(5 Women)

Table	Max relationships	Min relationships
a man has	1	0
a woman has	1	1 (mandatory)

Connectivity   Participation

Entity Relationship Diagram (ERD)

SIX (6) Steps to develop an ERD

- **Step 1:** Find all possible entities [look for nouns]

- **Step 2:** Draw entities with attributes, add primary keys

- **Step 3:** Find & show relationships [find verbs] one by one between entities

- **Step 4:** Find & show connectivity one by one between entities

- **Step 5:** Find & show participation one by one between entities

- **Step 6:** Insert Foreign keys and Revise above Steps 1 to 5 to ensure your ERD is complete

ERD example (TWO entities): Library

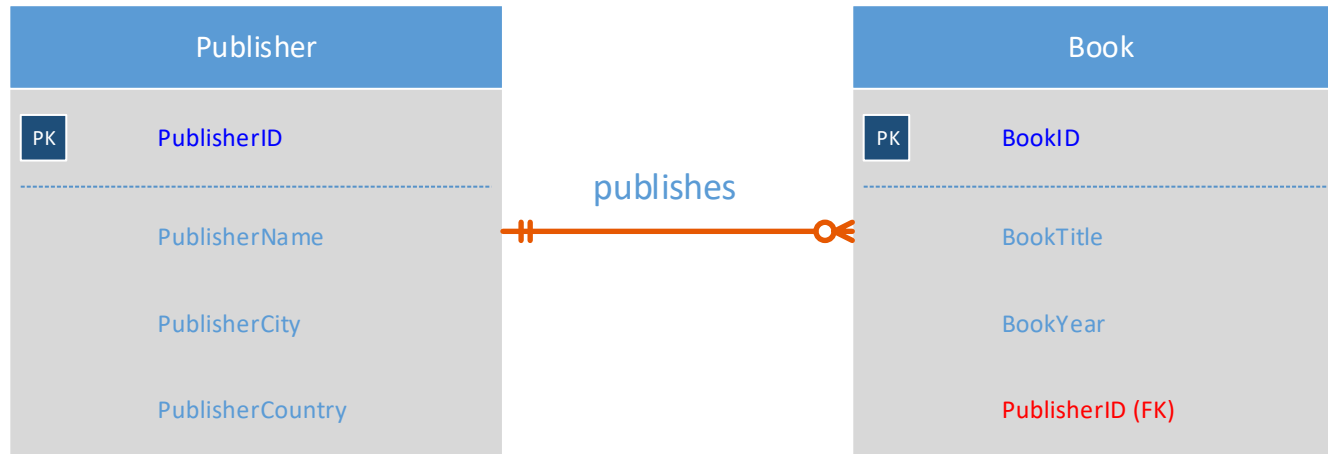A local library wants to computerise their book database. Business rules are as follows:

- Each book is published by one and only one publisher. A publisher may publish many books.

- For each book, the library needs to record book id, title, and year.

Publisher number and name will also need to be stored.

- Books from some publishers may not be available in the library yet!

Steps:
1. Entity
2. Attributes
3. Relationships
4. Connectivity
5. Participation
6. Foreign keys

Library ERD (TWO entities)

Publisher	
PK	**PublisherID**
---	---
	PublisherName
	PublisherCity
	PublisherCountry

publishes

Book	
PK	**BookID**
---	---
	BookTitle
	BookYear
	PublisherID (FK)

- Insert PublisherID as a Foreign key in Book table
- Why BookID is not a FK in Publisher table?
- FK usually inserted in "Many side" to avoid data redundancy in "One side!"

Thank you.