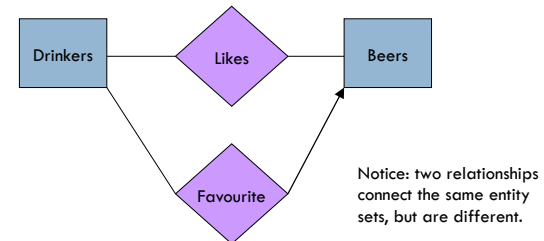## Announcements

1

- Lecture topics and textbook readings will be added to Avenue calendar
- Looking for 2 undergrad TAs for Winter 2022
  - Will be interviewing post-midterm
  - Expected good performance in **this** course ☺
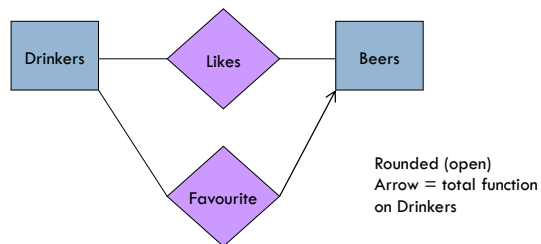
1

Example: Many-One Relationship

2

Notice: two relationships connect the same entity sets, but are different.

2

Example: Many-One Relationship

3

Rounded (open)
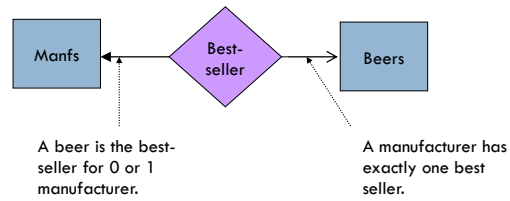Arrow = total function on Drinkers

3

Example: One-One Relationship

4

- Consider Best-seller between Manfs and Beers.
- Some beers are not the best-seller of any manufacturer
- But a beer manufacturer has to have a best-seller.

4

In the E/R Diagram

5

A beer is the best-seller for 0 or 1 manufacturer.

A manufacturer has exactly one best seller.

5

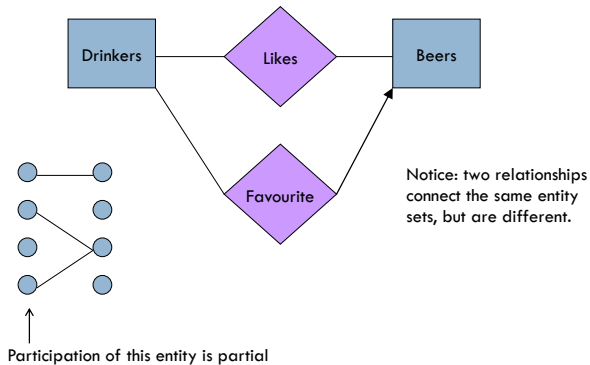## Participation Constraints

6

☐ Does every student have to take a course?

- ☐ If so, this is a *participation constraint*: the participation of Students in Enrolled is said to be *total* (vs. *partial*).
- ☐ Every *sid* value in Students table must appear in a row of the Enrolled table (with a non-null *sid* value!)

☐ Textbook notation: total participation represented by a thick (bolded) line originating from entity
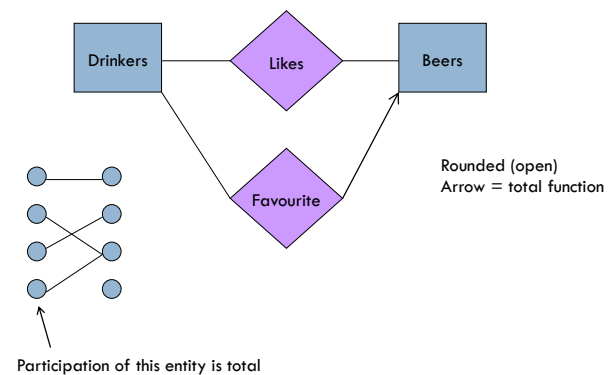
6

Example: Many-One Relationship

7
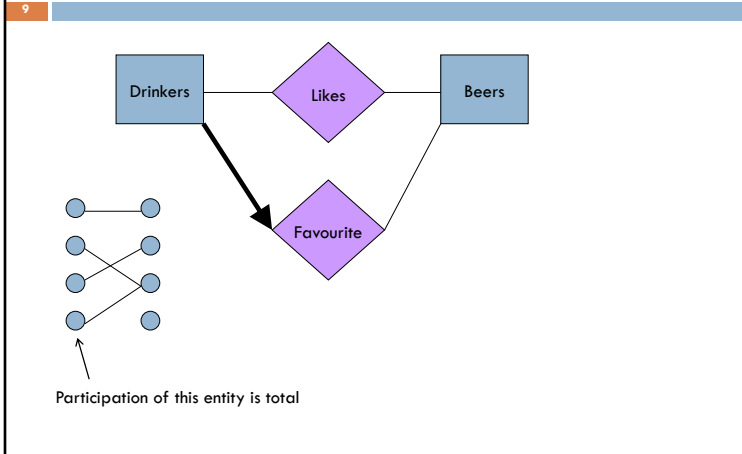

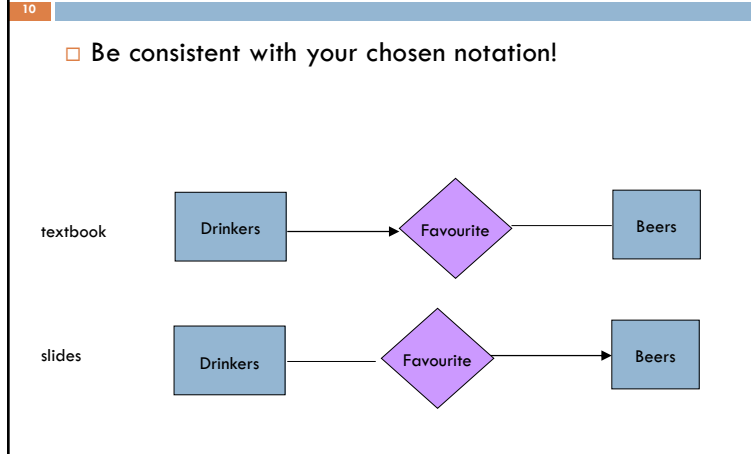Notice: two relationships connect the same entity sets, but are different.

Participation of this entity is partial

7

Example: Many-One Relationship

8

Rounded (open) Arrow = total function

Participation of this entity is total

8

Alternative (Textbook) Notation

9

Drinkers — Likes — Beers

Favourite

Participation of this entity is total

9

Notation

10

□ Be consistent with your chosen notation!

textbook   Drinkers → Favourite — Beers

slides   Drinkers — Favourite → Beers

10

Key Constraints

11

Employees — WorksIn — Dept.

Manages

□ Many-many: "An employee can work in many depts, and a dept. can have many employees

□ One-many: A dept has at most one manager, and employees can manage many departments

11

Participation Constraints

12

□ Does every dept. have to have a manager?
  ■ If yes, then every dept. must appear in the manages relation: total participation (vs. partial)

Employees — Manages — Dept.

── Total participation (all)

→ Key constraint (at most one)

[textbook] ➡
[slides] →   Total participation and key constraint (all and exactly one)
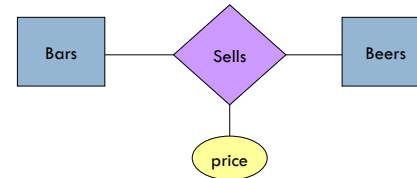
12

3

Attributes on Relationships

- Sometimes it is useful to attach an attribute to a relationship.
- Think of this attribute as a property of tuples in the relationship set.

13

Example: Attribute on Relationship

Price is a function of both the bar and the beer, not of one alone.
E.g., "The price of Miller beer at Joe's bar"

14