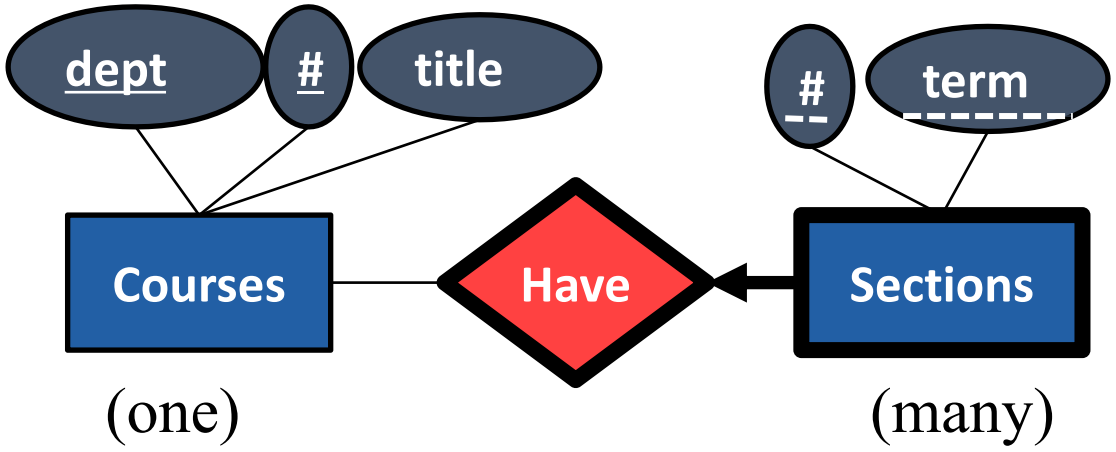
Administrative Notes – January 19, 2023

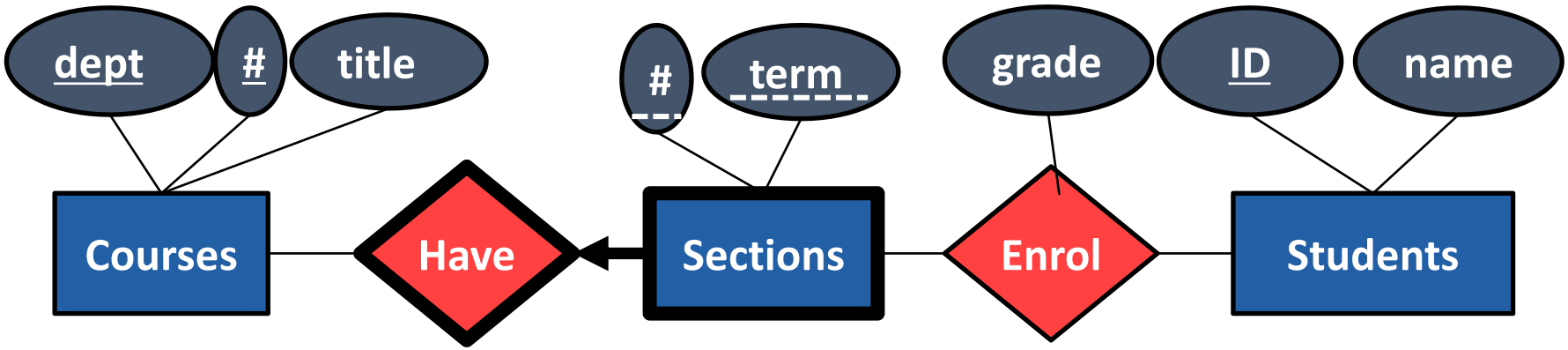
- If you haven't already, please register your clicker on Canvas
  - If you do not do this, then we will not be able to sync your iClicker grades to Canvas
  - Clicker grades were resynced last class so they should be accurate for both Jan 12 and 17
- Don't forget to refer to the tentative schedule for assignment deadlines and tutorial information
- Jan 23: Last day to drop the class without a W
- Jan 27: Assignment 1 due
- Assignment 2 available on Canvas
- Submit your own work for in-class exercises (i.e., don't submit the lecture slide with the answer)
- You will need a physical student card for the class so please get one

Weak Entities

- A ***weak entity*** can be identified uniquely only by additionally considering the key of another (*owner*) entity.
  - Owner entity set and weak entity set must participate in a one-to-many relationship set (one owner, many weak entities).
  - Weak entity set must have total participation in this ***identifying*** relationship set.
  - Think of this as a "belongs to" relationship.
- Weak entity sets and their identifying relationship sets are shown with thick lines.



A better solution would be if Sections could depend on Courses



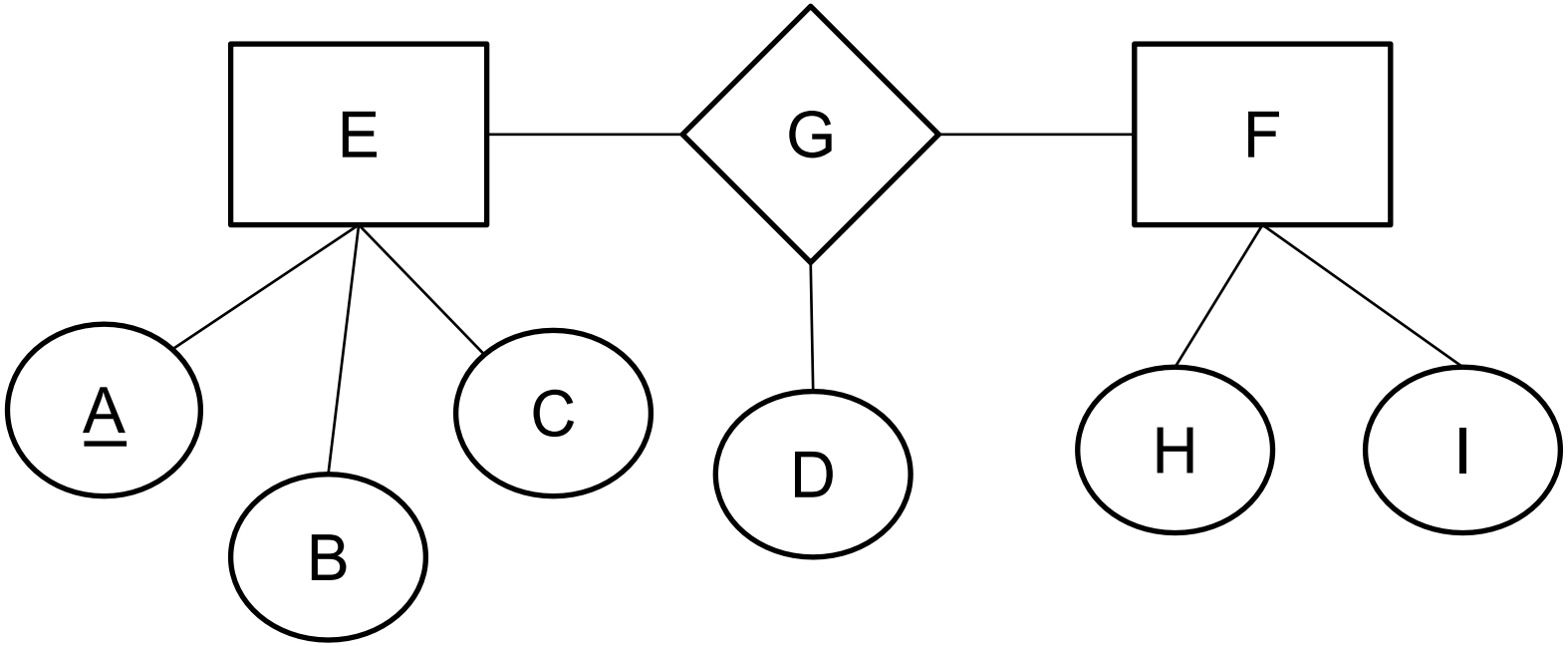
Is this what we want for the key of Sections?

- Looking only at Sections: 201 2022W2 is not unique
- Looking at Courses + Sections: CPSC 368 201 2022W1 is unique

Congratulations, you can now take CPSC 368 twice (yay?)

Exercise (don't need to hand this in)

Fix the diagram below to say that F is a weak entity set with a partial key, H, and its owner entity set is E.



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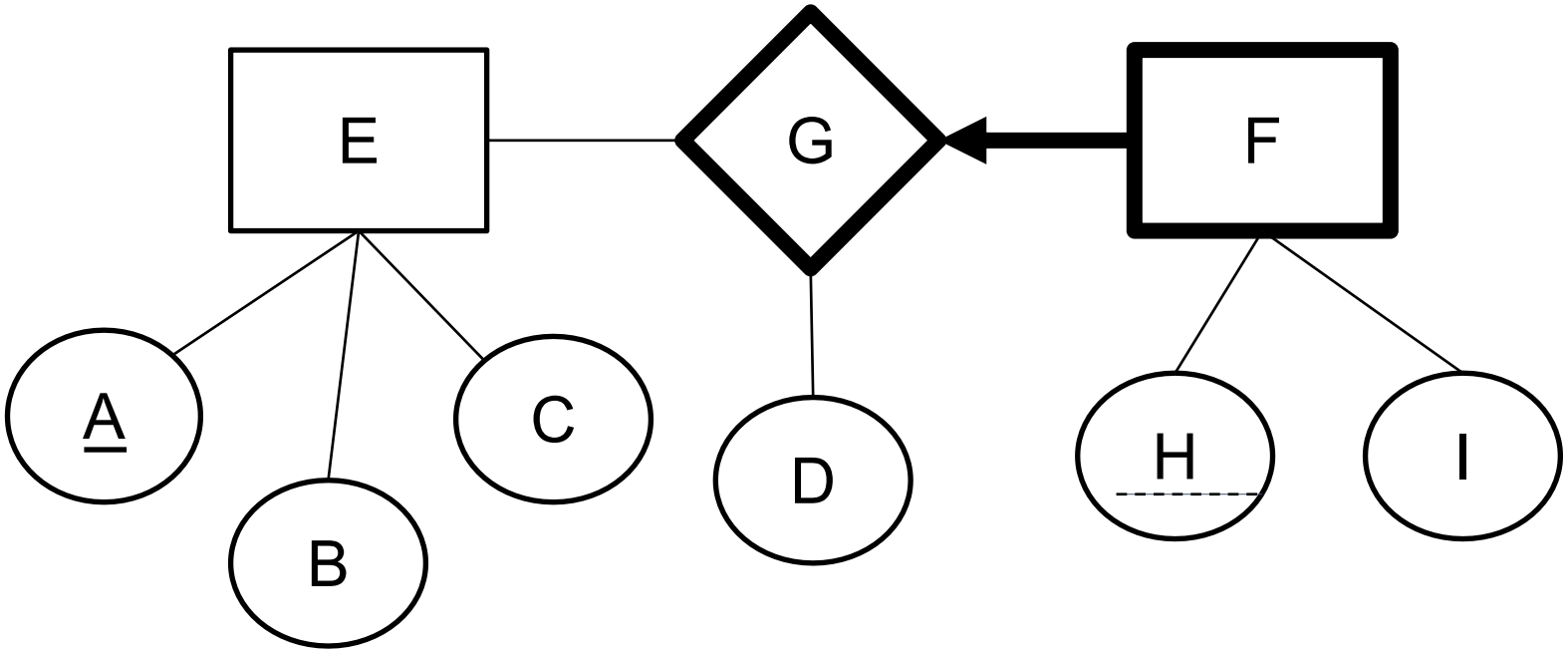


Clicker Question

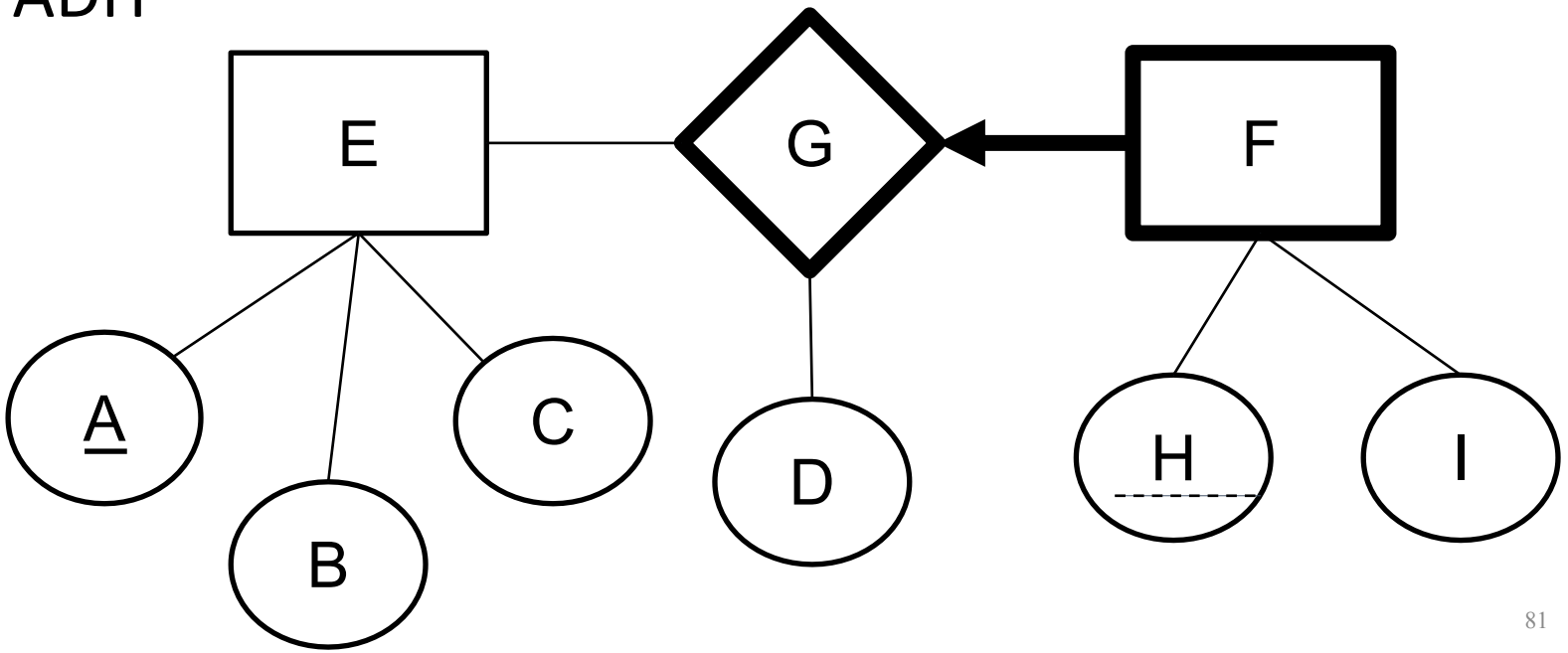
What is the primary key of entity set F?

A. A

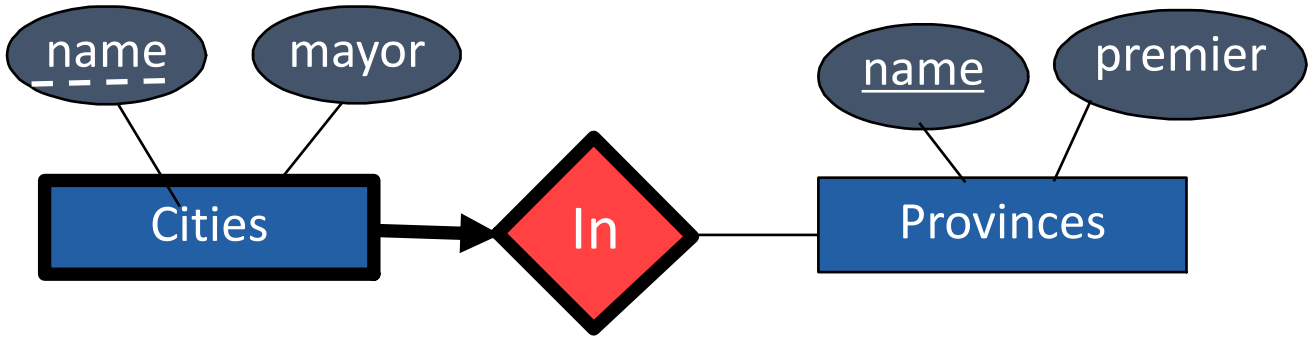
B. H

C. AH

D. ADH



Clicker Question



Based on the diagram above, which of the following **must** to be true:

A. No two provinces can have premiers with the same name.

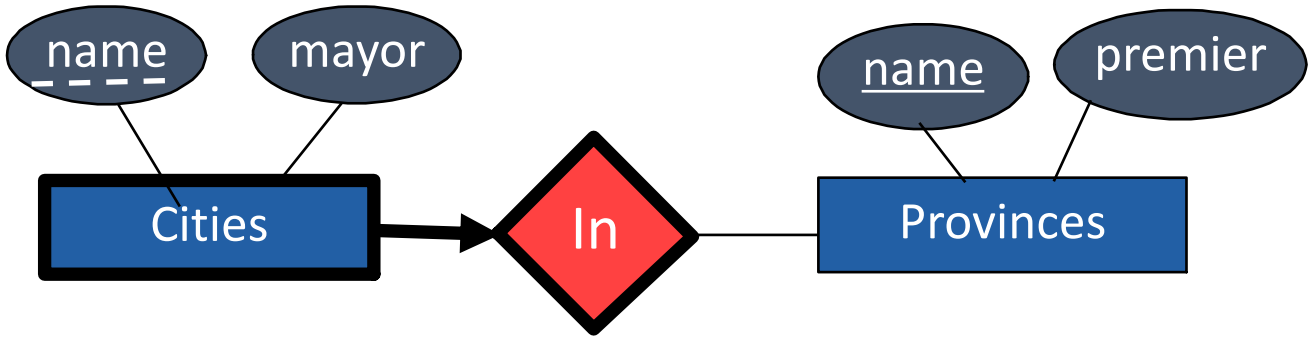
B. No two cities can have mayors with the same name.

C. No two cities can have the same name.

D. No person can be the mayor of Cities In two different provinces.

E. None of the above

Clicker Question



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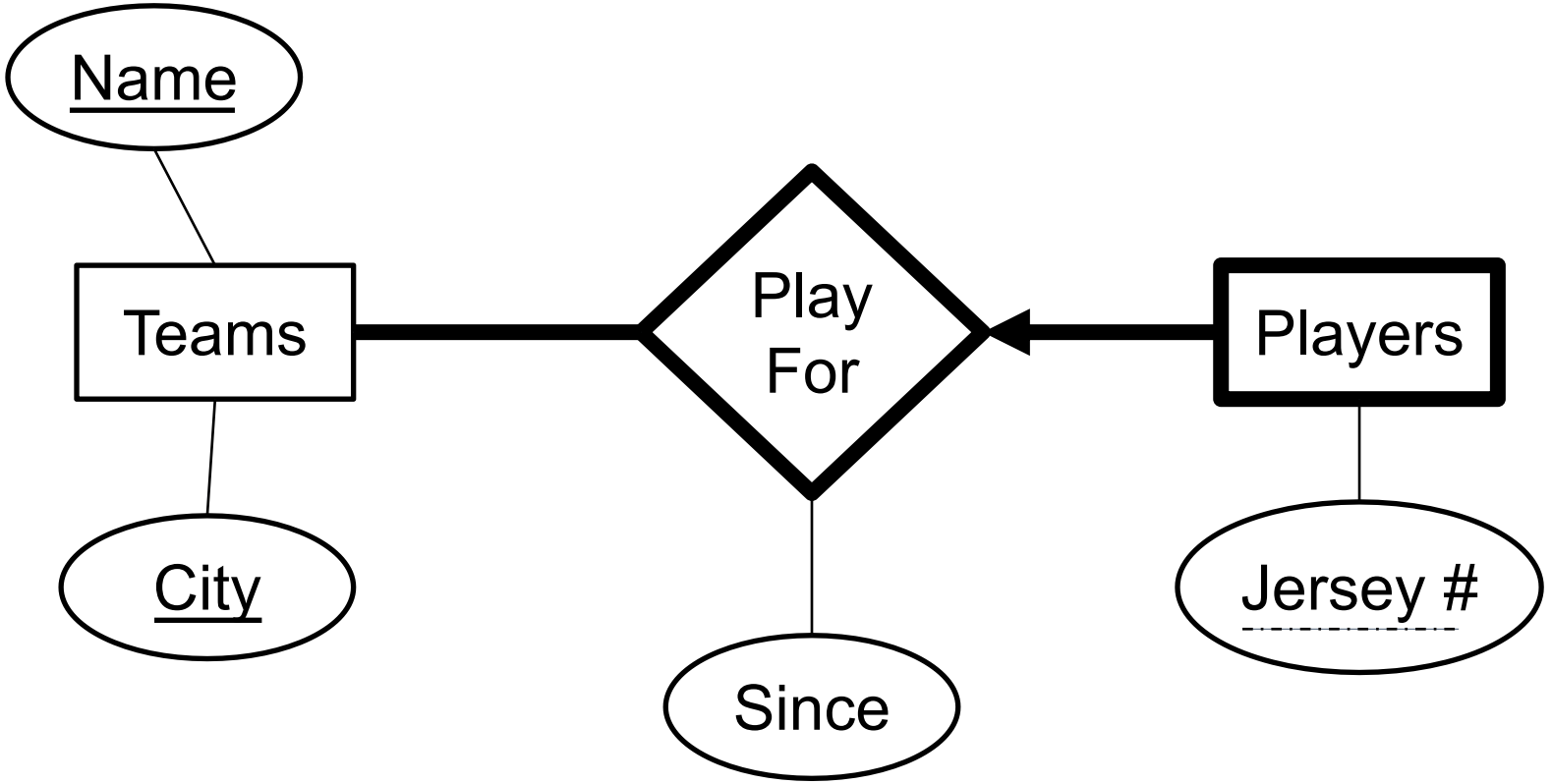
E. None of the above

Key = name of city + name of province (Victoria, BC)

Exercise: Hockey Teams (don't need to hand this in)

- A hockey team has multiple players
- Each team has a name and a home city.
- No two teams can have the same name and home city combination.
- We do not need to retain past home city or name information.
- A player can only play for one team (we do not retain past team information), and every player must be on a team
- Each player has a unique jersey number; the combination of the jersey number and the team information is unique
- Every team must have players
- We retain the date when the player last started playing for the team.

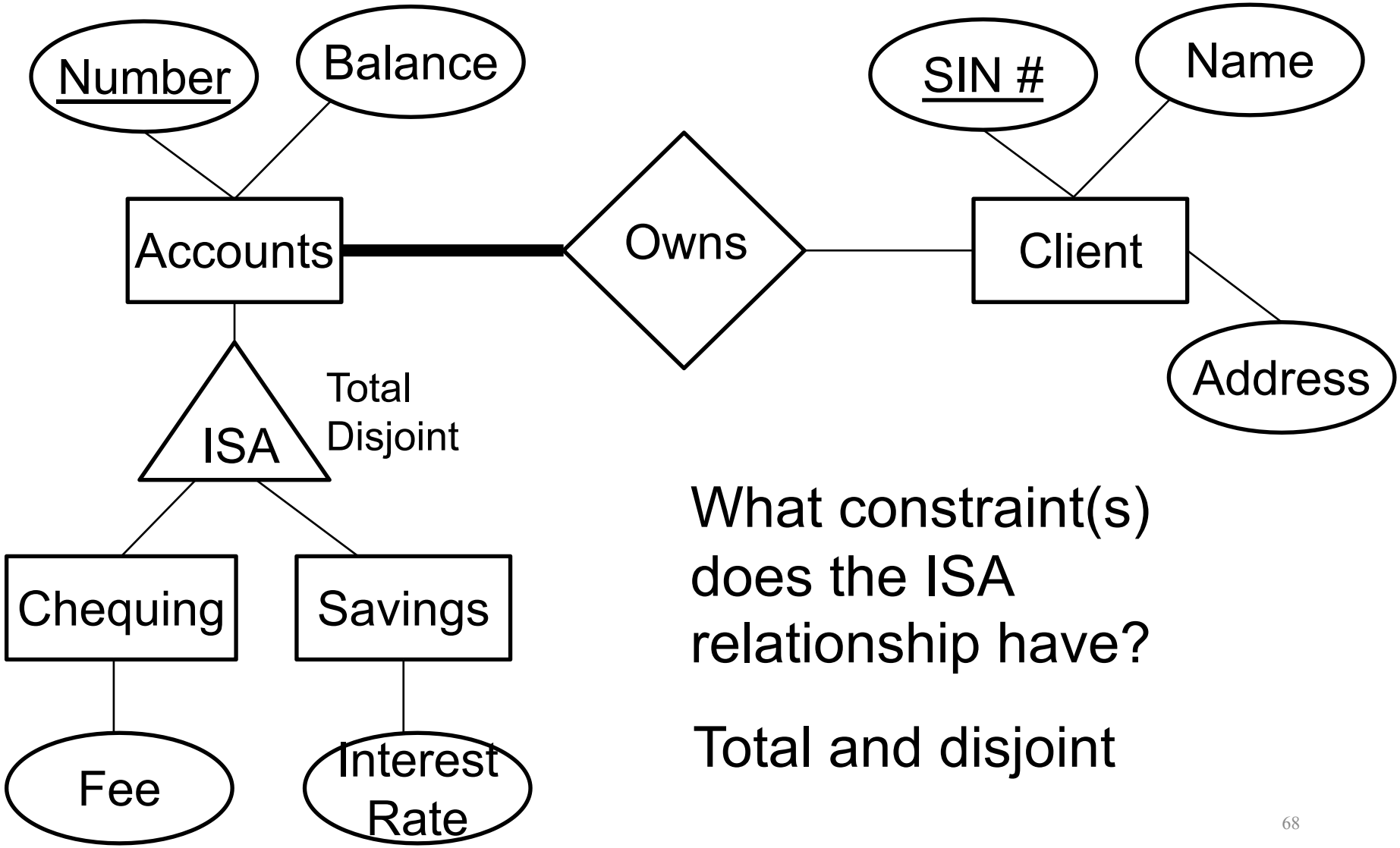
Exercise: Hockey Teams (don't need to hand this in)



Exercise: Banks (don't need to hand this in)

- A bank has a database with accounts.
- Each account records the (unique) account number and the current balance.
- There are two types of accounts: chequing and savings.
- Savings accounts have an interest rate.
- Chequing accounts have a monthly fee.
- The database also has information about depositors - their name, (unique) social-insurance number, and a single address.
- The bank stores, for each account, the depositor or depositors (in the case of joint accounts), that own the account.
- Each account must have at least one depositor.

Exercise: Banks

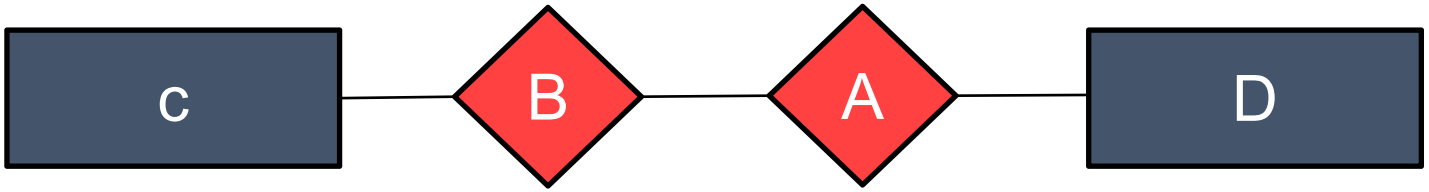


What constraint(s) does the ISA relationship have?

Total and disjoint

Aggregation

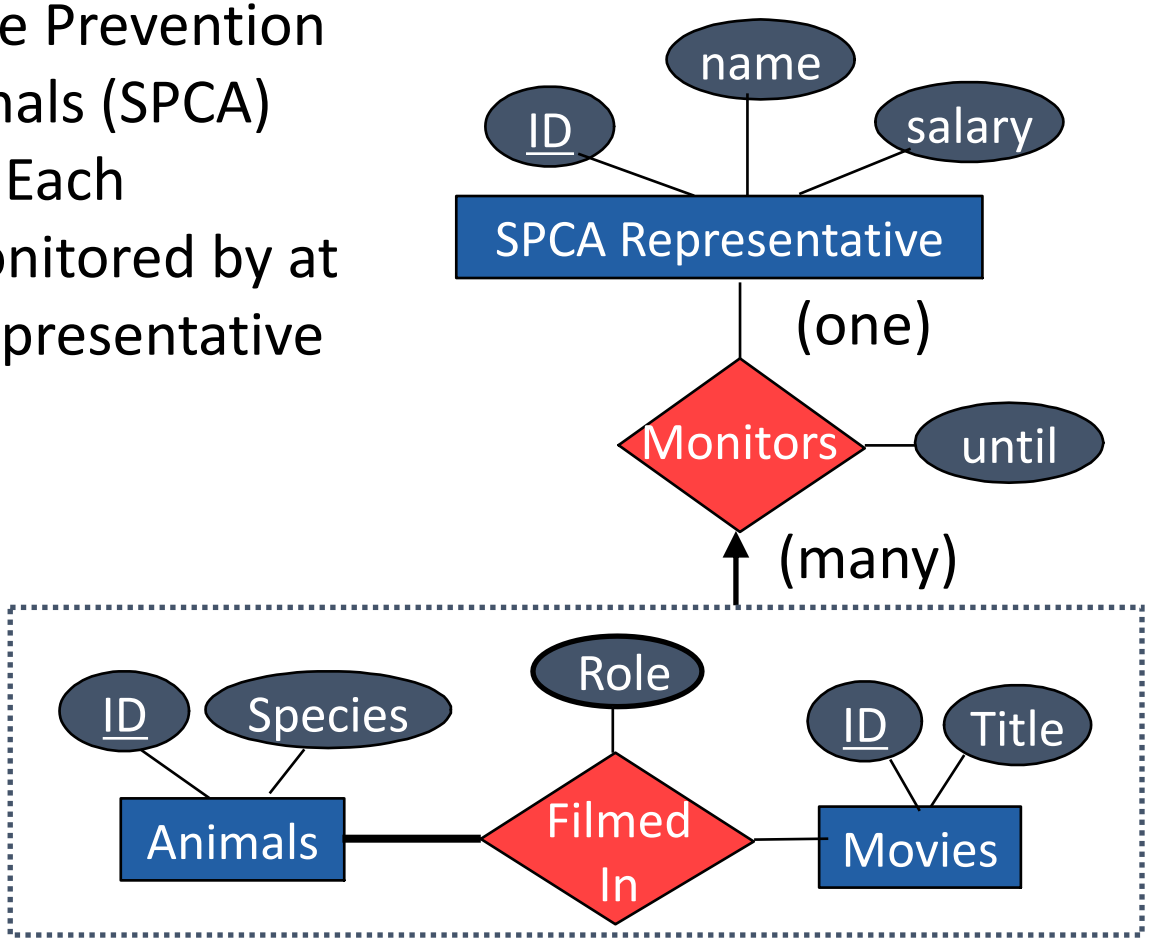
- Having a relationship between relationships is forbidden.



- *Aggregation* allows us to treat a relationship set as an entity set for purposes of participation in (other) relationships

Aggregation: getting around relationships between relationships

- The Society for the Prevention of Cruelty to Animals (SPCA) monitors movies. Each sponsorship is monitored by at most one SPCA representative

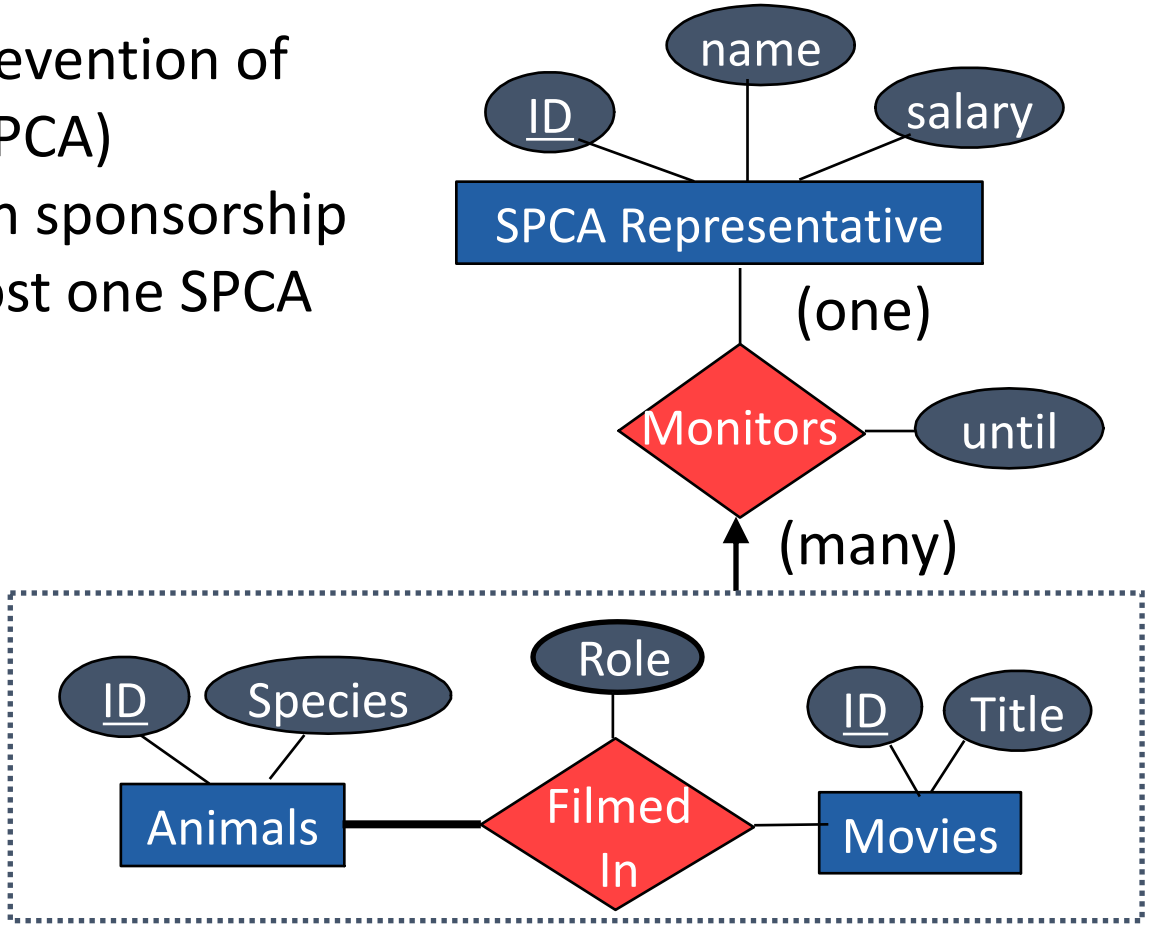


Aggregation: getting around relationships between relationships

- The Society for the Prevention of Cruelty to Animals (SPCA) monitors movies. Each sponsorship is monitored by at most one SPCA representative
- What is the key for FilmedIn?

  Animal ID, movie ID
- What is the key for Monitors?

  Animal ID, movie ID



- This differs from a ternary relationship because monitors is its own relationship with a descriptive attribute

Clicker Question

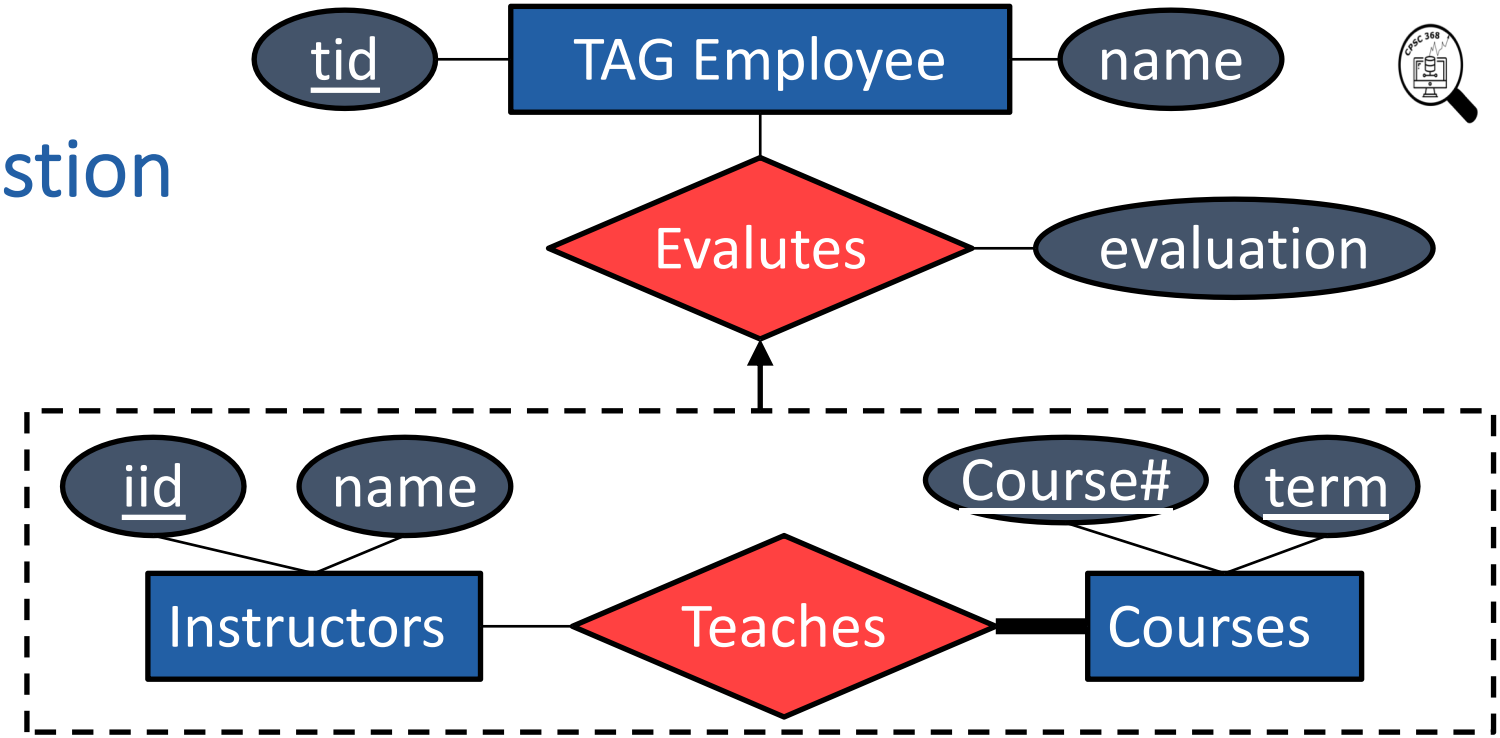


Figure out the (minimal) keys for each entity set and each relationship set in the above diagram.

Clicker Question

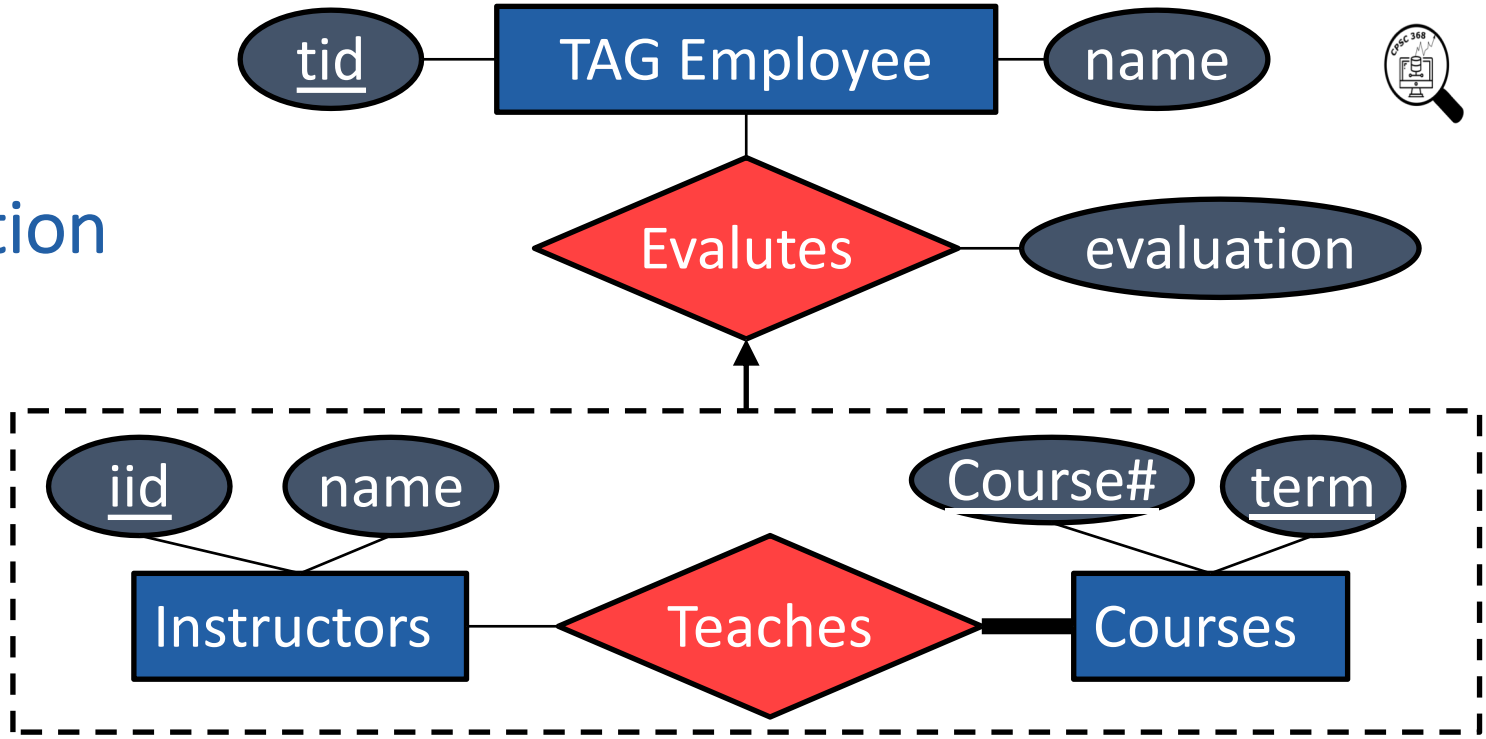
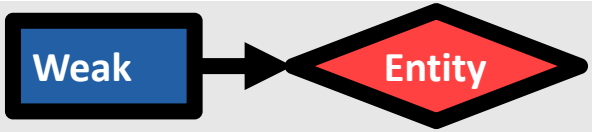
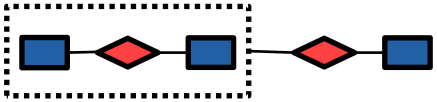
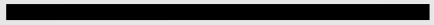


Figure out the (minimal) keys for each entity set and each relationship set in the above diagram.

Choose the correct choice of (minimal) key from the options below:

A. The (minimal) key of Evaluates is tid
B. The (minimal) key of Evaluates is iid + course# + term.
C. The (minimal) key of Evaluates is iid + course# + term + tid
D. The (minimal) key of Evaluates is iid+ course# + term + evaluation
E. None of the above

Summary

Name	Symbol
Entity	
Attribute	
Relationship	
Generalization/Specialization	
Weak Entity	
Aggregation	
Participation Constraints	
key constraints	

U of U University (not for marks). Draw an ER diagram for the following:

- The primary function of UofU is to offers courses to students.
- A student is identified by a unique student #, and has an address and a phone #. Each student is registered in a program at UofU
- Visiting students stay at UofU for a year.
- A course offered by UofU is identified by the department that offers the course and a course# which is unique within the department. We list our courses with their titles and the credits in our calendar.
- A course may be offered many times, even within the same term. Each offering is assigned a section # which is unique for a given course and year, and is taught by a single instructor.
- Each instructor is responsible for some section; there are no idle instructors. Instructors have unique names, and may teach a # of sections of different courses. For each instructor we like to keep info about their higher degree.
- A student registers in a course section and gets a mark for the course.
- A course may have any number of other courses as prerequisites.