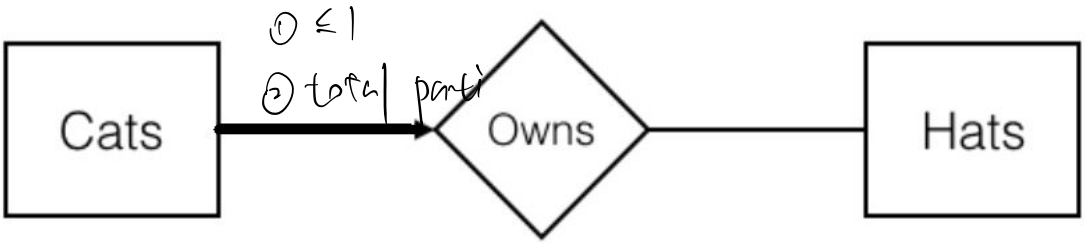
CS150A Quiz 08

Warmup

Let's consider the (very simple) ER diagram below for our new cats database.



1. Based on the above ER diagram, which of the following can be true?
Check all that apply.

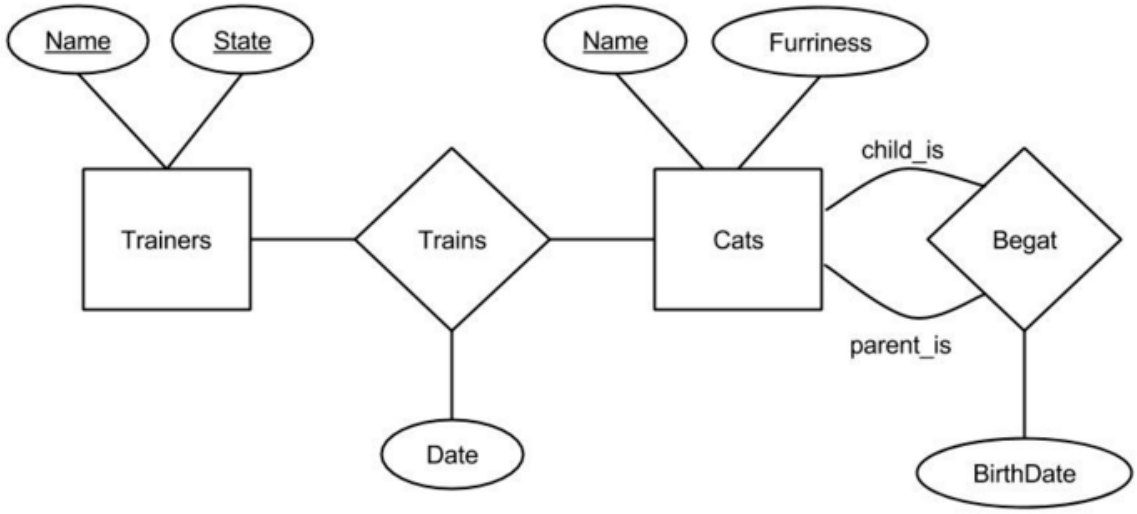
- [ ] A cat can own no (zero) hats.
- [ ] A cat can own many hats.
- [x] A hat can be owned by no (zero) cats.
- [x] A hat can be owned by many cats.

2. In general, which of the following statements are true?
Select all that apply. There is at least one true option.
Check all that apply.

- [x] A relationship involving a key constraint can be one-to-many.
- [x] A 1-to-1 relationship must involve two key constraints, and vice versa.
- [ ] A many to {1, many} relationship must involve at least one participation constraint.
- [x] A 1-to-{1, many} relationship must involve at least one key constraint
- [ ] A many-to-many relationship must involve two participation constraints, and vice versa.
- [x] A relationship involving a participation constraint can be 1-to-1.

{1, many} ⟷ {1, many}
key

Let's now consider a more interesting model, between Cats and their Trainers. Keys for each entity set are underlined. Initially, there are no key constraints and no participation constraints.



3. We want to model the relationship that every trainer must have trained at most one cat. What kind of constraint do we have between Trainers and Trains?

Mark only one oval.

- [ ] Key constraint with total participation
- [x] Key constraint with partial participation
- [ ] No key constraint with total participation
- [ ] No key constraint with partial participation

4. We want to model the relationship that every cat has at least one trainer. What kind of constraint do we have between Trains and Cats?

Mark only one oval.

- [ ] Key constraint with total participation
- [ ] Key constraint with partial participation
- [x] No key constraint with total participation
- [ ] No key constraint with partial participation

5. Every cat has exactly 2 parents. What type of constraint on "parent_is" best captures this relationship?

Mark only one oval.

- [ ] Key constraint with total participation
- [ ] Key constraint with partial participation
- [x] No key constraint with total participation
- [ ] No key constraint with partial participation

6. Every cat can beget exactly one kittens. What type of constraint on "child is" best captures this relationship?

Mark only one oval.

- [ ] Key constraint with total participation
- [x] Key constraint with partial participation
- [ ] No key constraint with total participation
- [ ] No key constraint with partial participation

7. Every cat has exactly 2 parents. You decide to add an extra relationship "parent2_is" to capture this effect. What type of constraint should "parent_is" and "parent2_is" now be?

Mark only one oval.

- [x] Key constraint with total participation
- [ ] Key constraint with partial participation
- [ ] No key constraint with total participation
- [ ] No key constraint with partial participation

8. It turns out that historical records for purebred cat genealogy only go back a few hundred years. As such, some cats may not have parents associated with them.Working from your answer to the last question - what types of constraint do "parent_is"and " parent2_is" become?

Mark only one oval.

- [ ] Key constraint with total participation
- [x] Key constraint with partial participation
- [ ] No key constraint with total participation
- [ ] No key constraint with partial participation

9. True/False: A weak entity is uniquely identified with its owner identity, and behaves like an entity with a key constraint and total participation.

Mark only one oval.

- [x] True
- [ ] False