BITS, PILANI – K. K. BIRLA GOA CAMPUS

Database Systems
(CS F212)

by

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Keys

- Student (id, name, dob, city, street, state, hostel_no, mobile_no, email_id)
- **Superkey:** {id, name, dob, city, street, state, hostel_no, mobile_no, email_id}
- **Candidate keys:**
    - {id}
    - {id,name}
    - {name,mobile_no}
    - {id, email_id}
   - {email_id}
- **Primary key** {id}

Keys

- A **super key** of an entity set is a set of one or more attributes whose values uniquely determine each entity.

- A **candidate key** of an entity set is a minimal super key.

- Although several candidate keys may exist, one of the candidate keys is selected to be the **primary key**.

Primary Key

- Primary key is an unique identifier and cannot have NULL value.
- It is always good to define a primary key to a table.
- A table(relation) may or may not have a primary key.
- Primary key can be a combination of more than one attribute.
- A table has only one primary key.

Keys
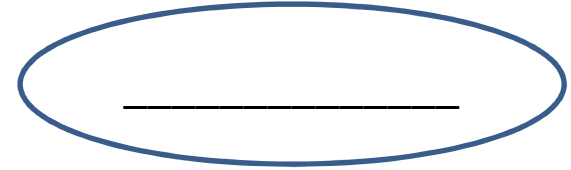
- **Primary key:**

  An attribute (or combination of attributes) that   uniquely identifies each row in relation.

- **Composite key:**

  A primary key that consists of more than one attribute.

- **Foreign key:**

  An attribute in a relation that serves as the primary key of another relation in the same database.

Q.

Difference between candidate key and composite key?

Keys for Relationship Sets

- The combination of primary keys of the participating entity sets forms a super key of a relationship set.

  – (*customer-id, account-number*) is the super key of *depositor*

  – *NOTE: this means a pair of entity sets can have at most one relationship in a particular relationship set.*

- Must consider the mapping cardinality of the relationship set when deciding the what are the candidate keys

Key Constraints
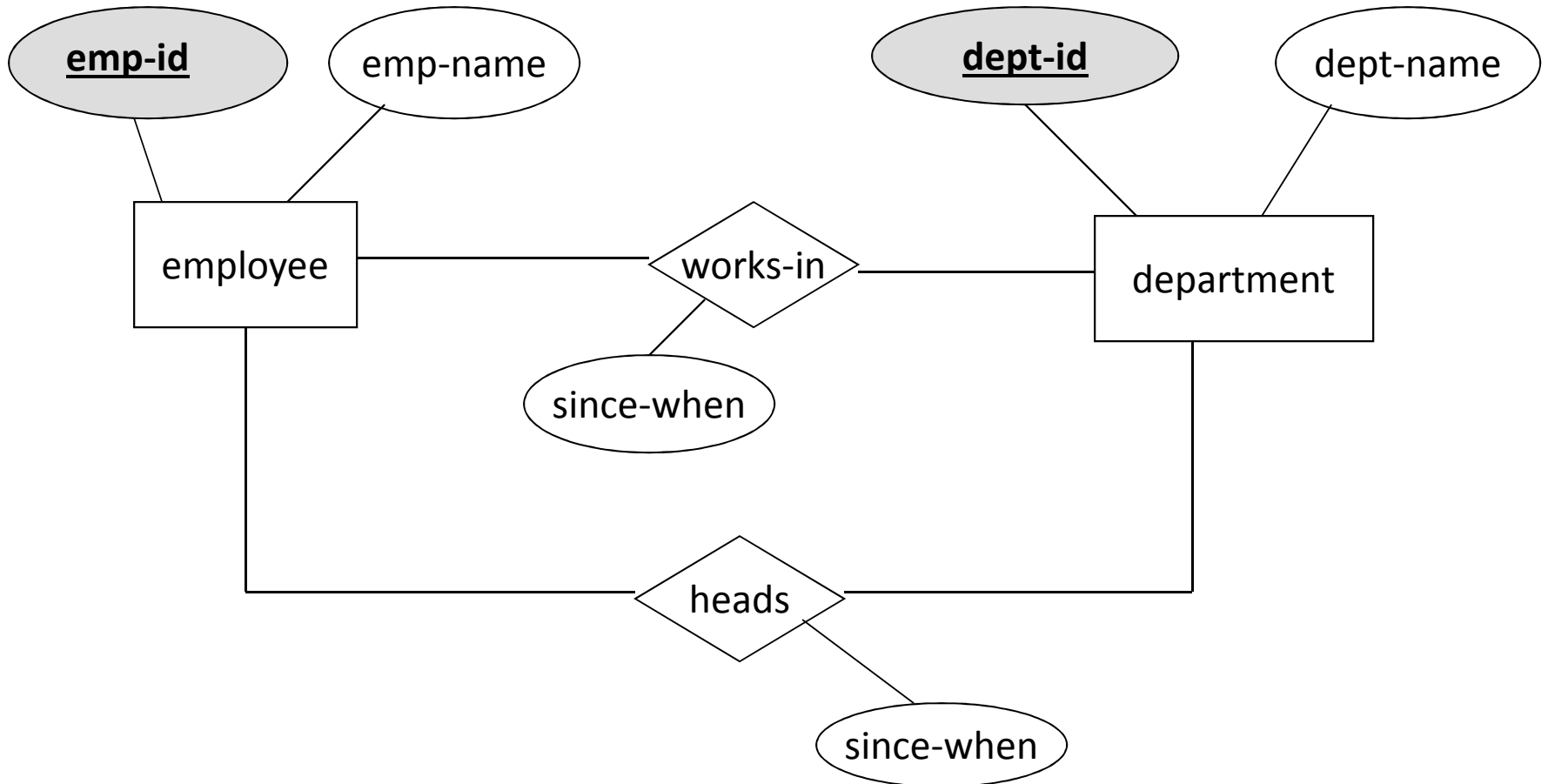
# Key constraint in ternary relationship
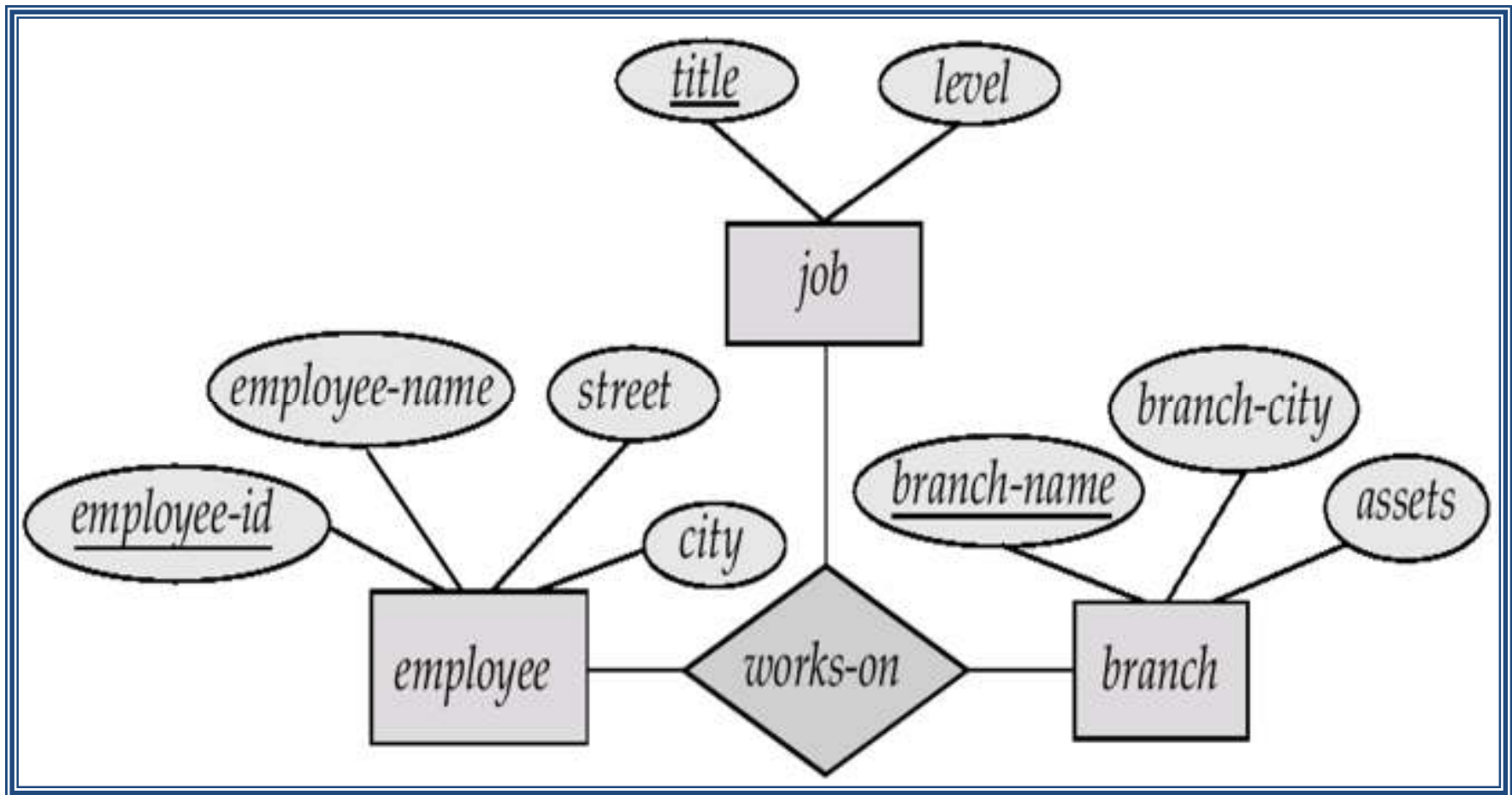
Consider Relation having loan details

Loan no	Payment no / EMI	Payment-Amount	Payment-Date
L1	P1	1 lakh	1st jan
L1	P2	1 lakh	1st feb
L2	P1	2 lakh	1st jan
L2	P2	5000	15th feb

Weak Entity Set

- Loan is a strong entity set and payment is a weak entity set
- Weak entity set is denoted by double rectangles.
- *payment-number* – discriminator of the *payment* entity set
- underline the discriminator of a weak entity set with a dashed line.
- Primary key for *payment* – (*loan-number, payment-number*)
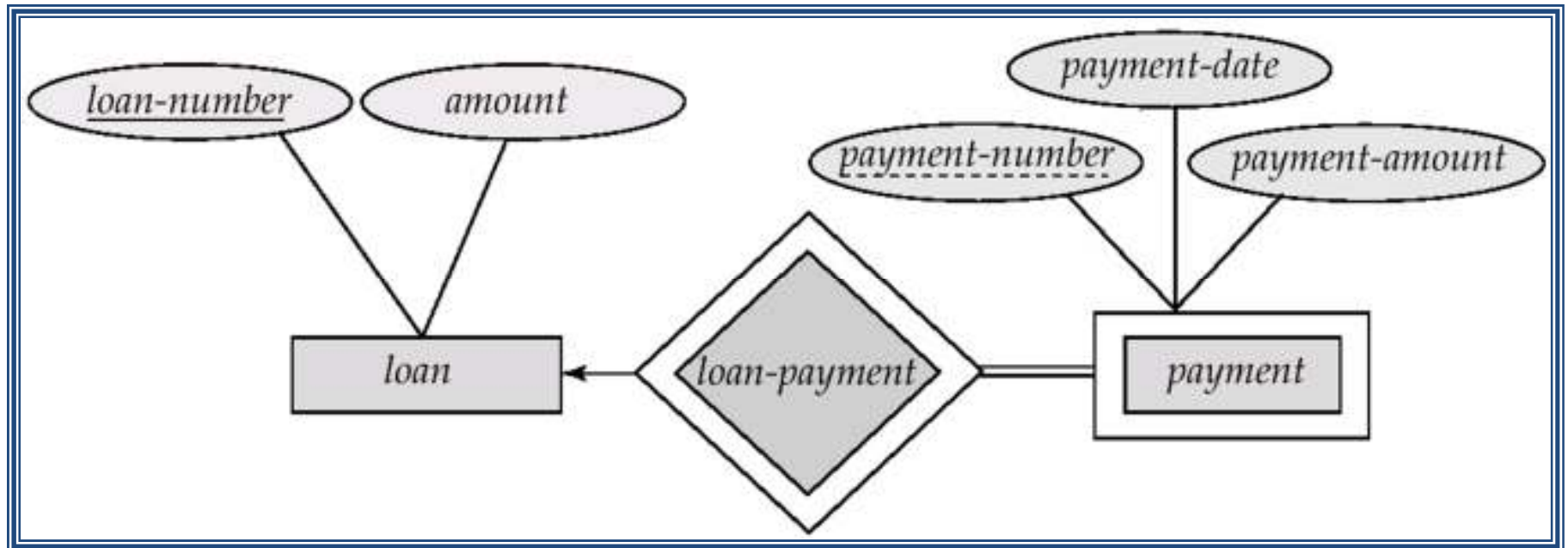
Weak Entity Sets (Cont.)

- An entity set that does not have a primary key is referred to as a weak entity set.

- The existence of a weak entity set depends on the existence of a identifying entity set (loan in above eg)

  - it must relate to the identifying entity set via a **total, one-to-many relationship set** from the identifying to the weak entity set

  - Identifying relationship depicted using a double diamond

Weak Entity Sets (Cont.)

- The discriminator (or partial key) of a weak entity set is the set of attributes that distinguishes among all the entities of a weak entity set.

- The primary key of a weak entity set is formed by the primary key of the strong entity set on which the weak entity set is existence dependent, plus the weak entity set's discriminator.

Weak entity set Example