

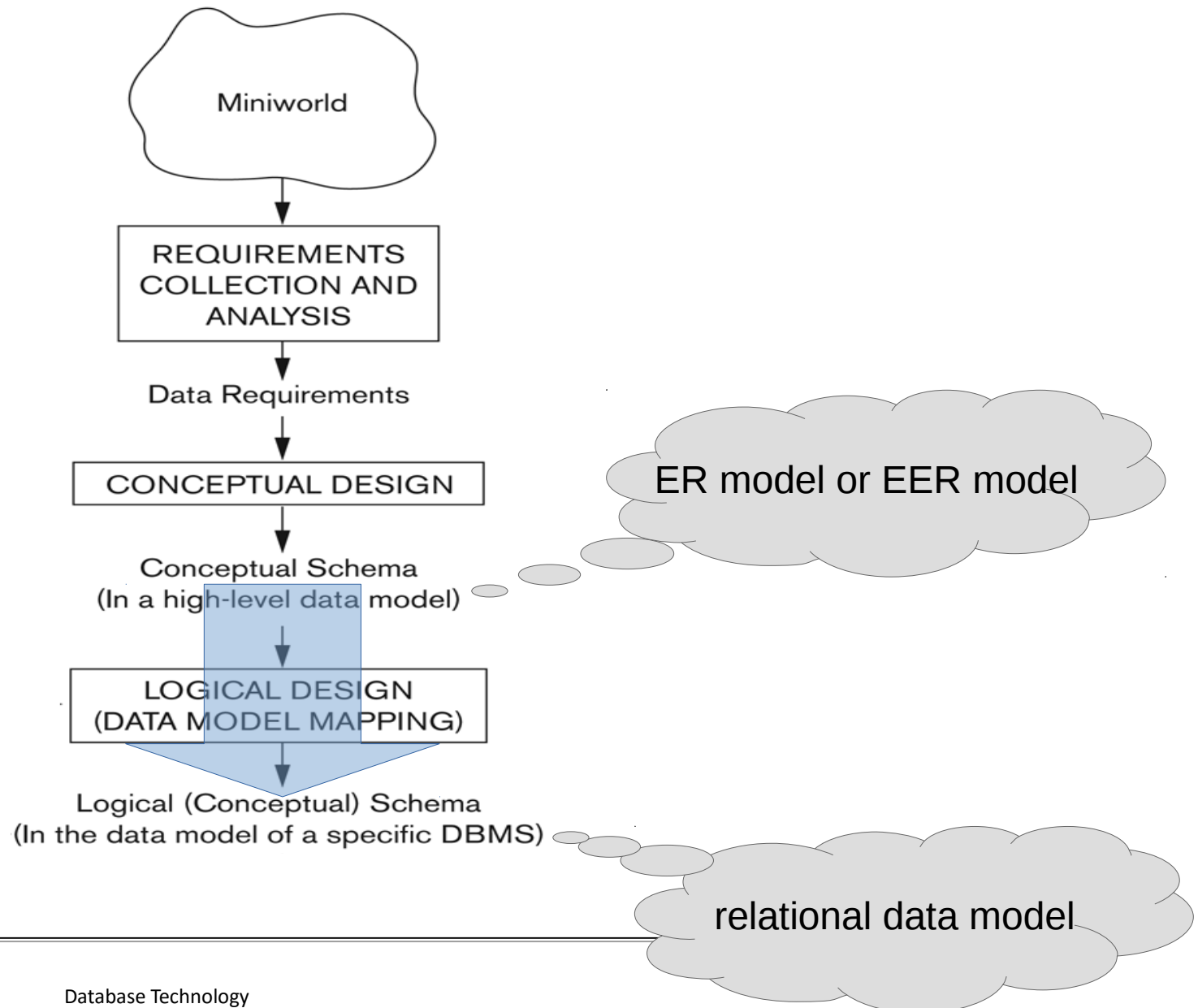
# Database Technology

## Topic 5: Mapping of EER Diagrams to Relational DBs

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# Recall: DB Design Process



# Algorithm/Procedure for ER Diagrams

## Step 1: Convert all regular entity types

- new relation, flatten composite attributes, ignore multivalued attributes

## Step 2: Convert all weak entity types

- new relation, attributes as above, include identifying relationship type(s)

## Step 3: Convert all 1:1 relationship types

- foreign key into either relation, include attributes of the relationship

## Step 4: Convert all 1:N relationship types

- foreign key into *N*-side relation, include attributes of the relationship

## Step 5: Convert all remaining relationship types (N:M, ternary, 4-ary, ...)

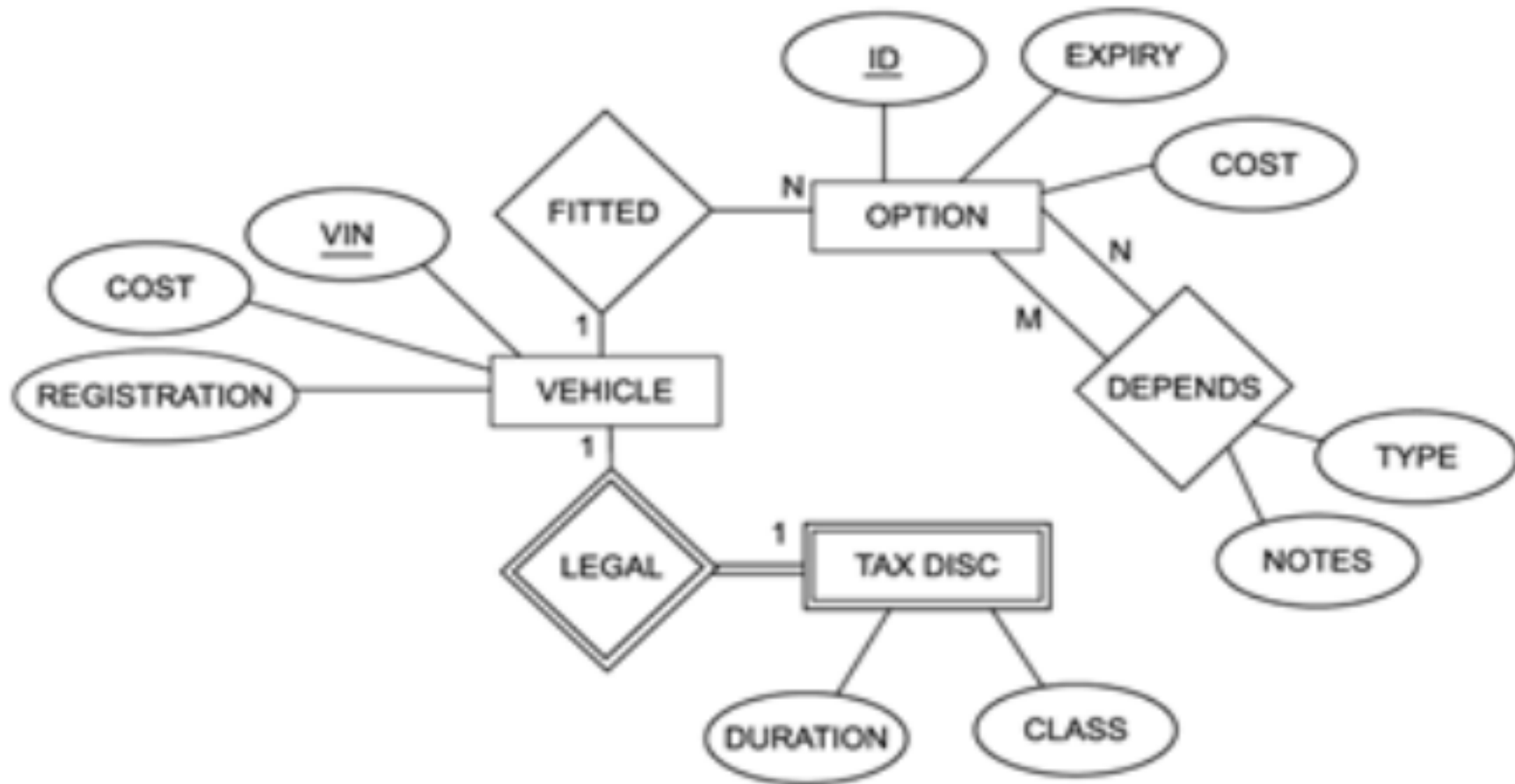
- new relation with foreign keys, include attributes of the relationship

## Step 6: Convert all multivalued attributes

- new relation with foreign keys

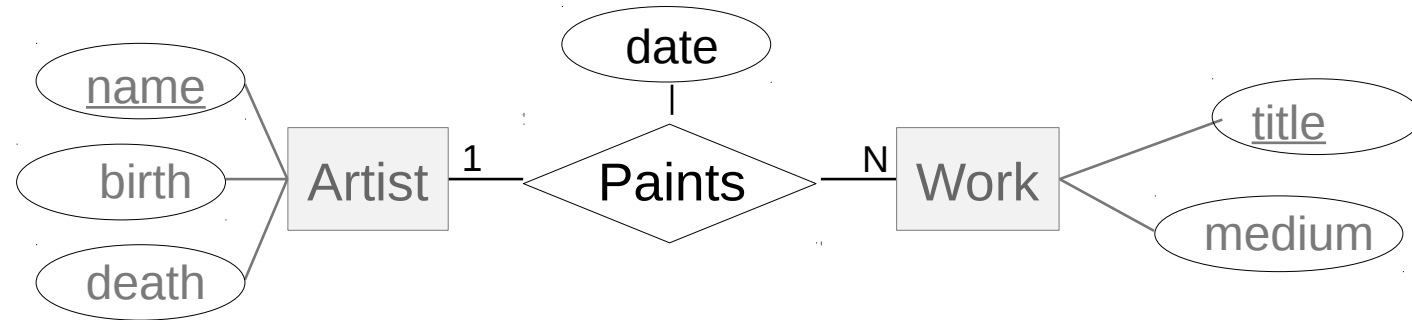
# Example

Translate the following ER Diagram into a relational database schema.



# Quiz

Consider the given ER diagram and relational DB schema



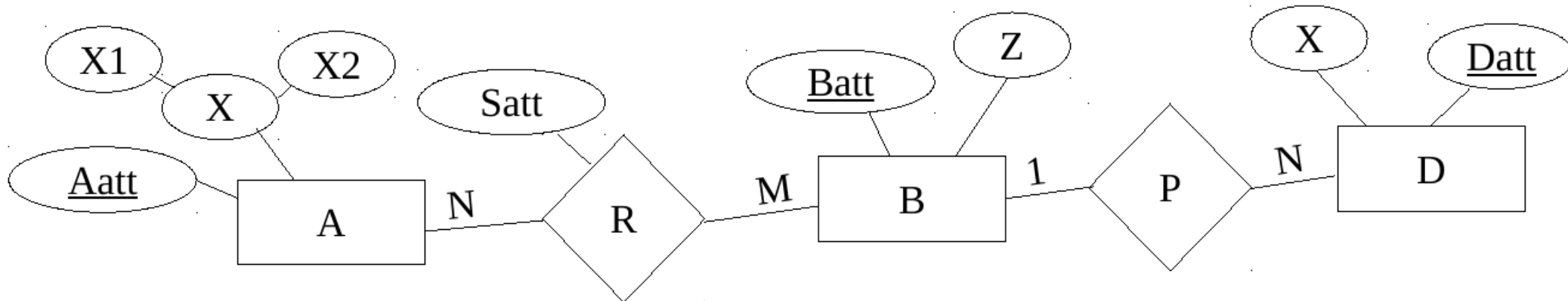
Artist(name,birth,death), Work(title,medium)

The Paints relationship can be represented by:

- A. introducing a third schema: Paints(name,title,date)
- B. extending the Work schema to be Work(title,medium,name,date)
- C. extending the Artist schema to be Artist(name,birth,death,title,date)
- D. either A or B above
- E. any of A, B, or C above

# Exercise

Consider the following ER diagram.

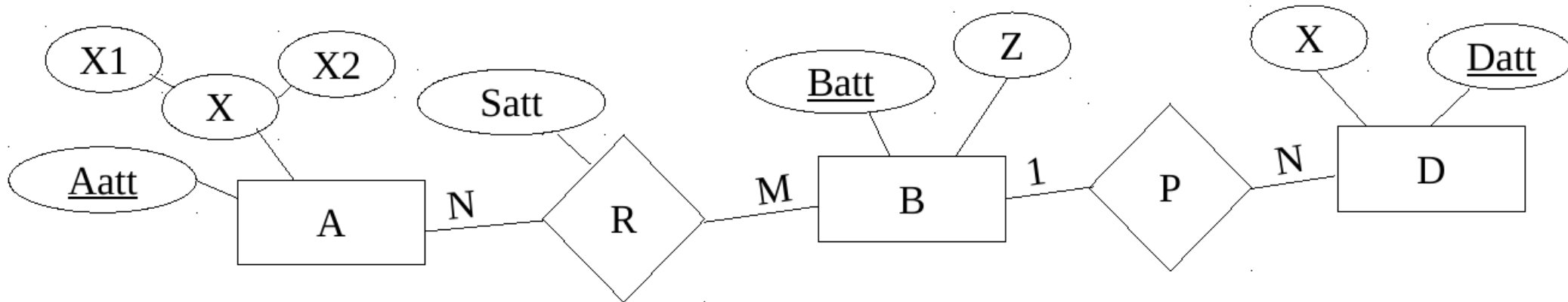


Your friend tried to translate this ER diagram into a relation DB schema. The result is illustrated below. Unfortunately, your friend made *two mistakes*. Identify these mistakes.

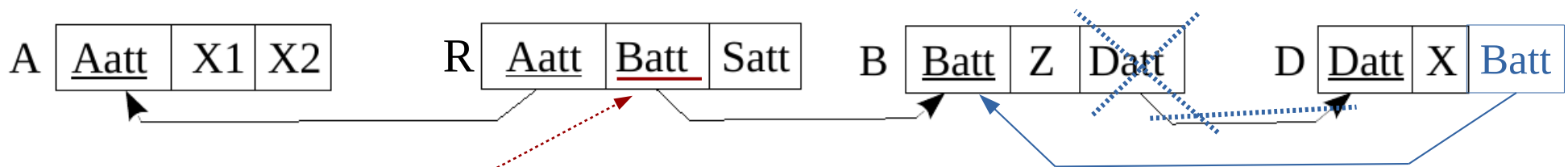


# Exercise

Consider the following ER diagram.



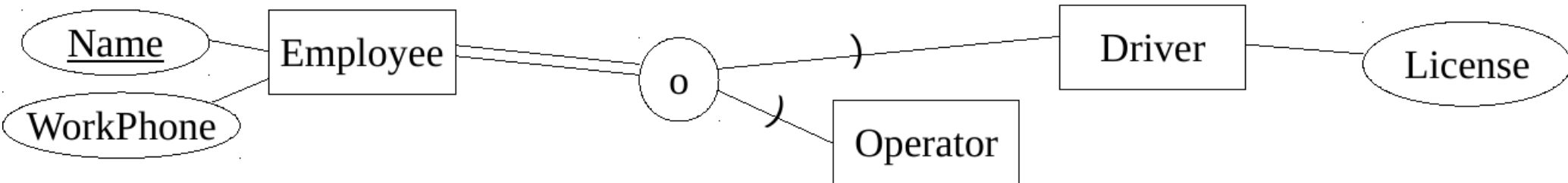
Your friend tried to translate this ER diagram into a relation DB schema. The result is illustrated below. Unfortunately, your friend made *two mistakes*. Identify these mistakes.



must be part of the primary key in S (together with Aatt)

# Another Exercise

Consider the following EER diagram.



Possible translation into a relation DB schema: single relation with a Boolean-type attribute for every subclass.

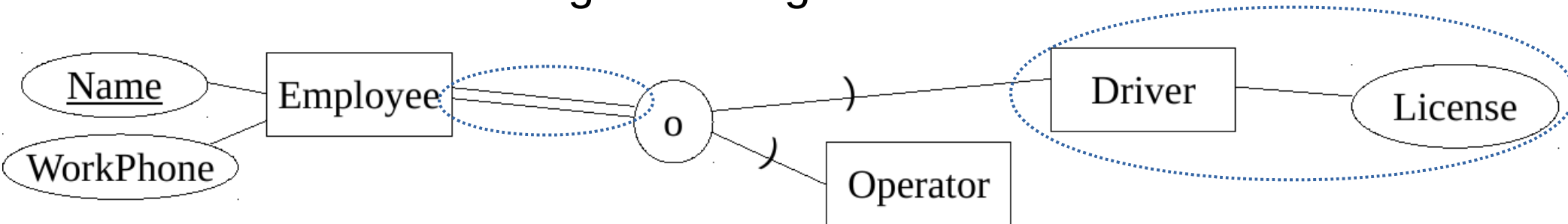
Employee	<u>Name</u>	Workphone	isDriver	isOperator	License
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Some information (such as constraints) captured in the EER diagram is not captured anymore in the relational DB schema.  
Which?



# Another Exercise

Consider the following EER diagram.

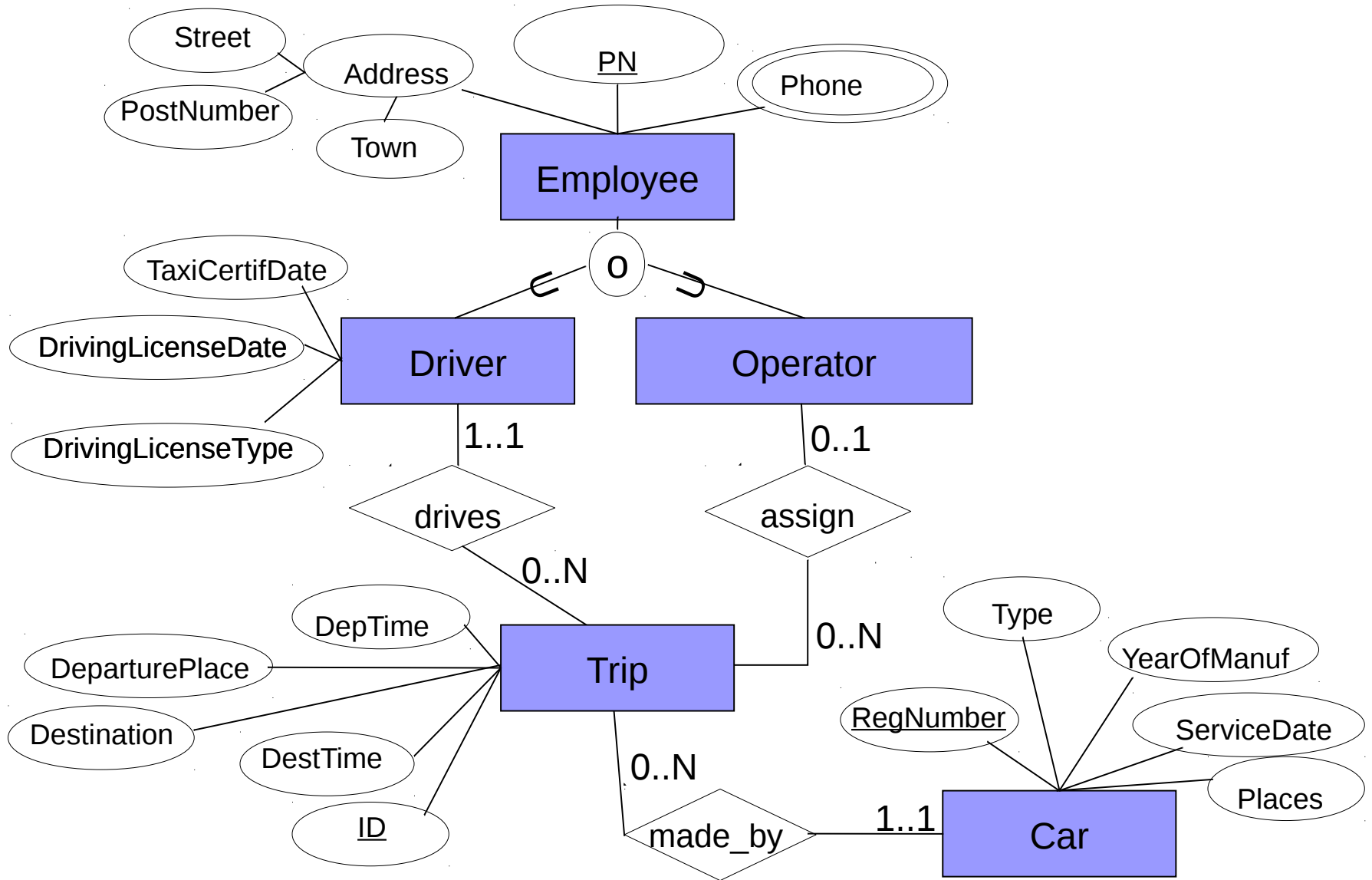


Possible translation into a relation DB schema: single relation with a Boolean-type attribute for every subclass.

Employee	<u>Name</u>	Workphone	isDriver	isOperator	License
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Some information (such as constraints) captured in the EER diagram is not captured anymore in the relational DB schema.  
Which?

# Example 2



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