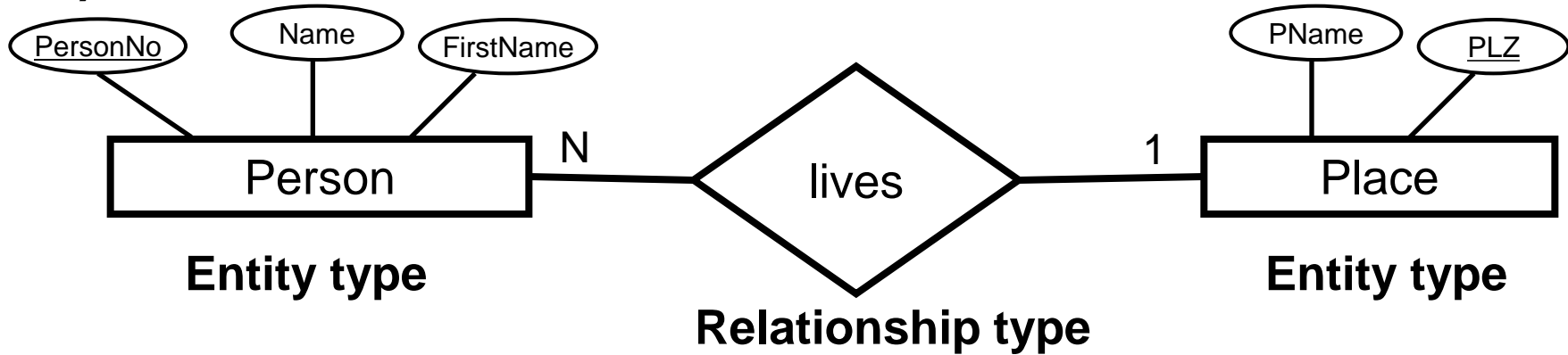


**Please note that:**

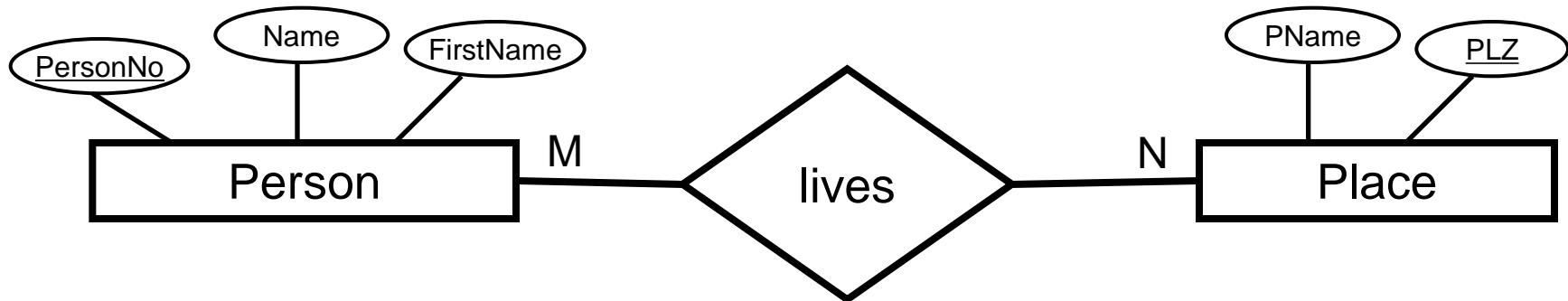
**There might be several correct answers. The following solutions cover the most plausible ones.**

# Exercise 1

a)



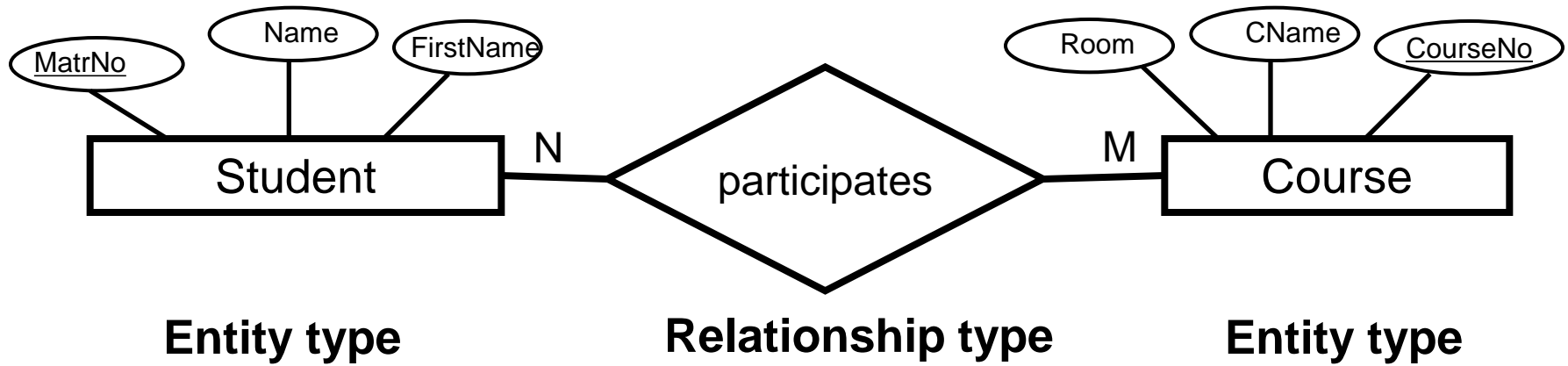
b)



Due to the ambiguous requirements, you might consider that the participation of Place in both cases is total (this is somehow implicitly defined in the introduction text).

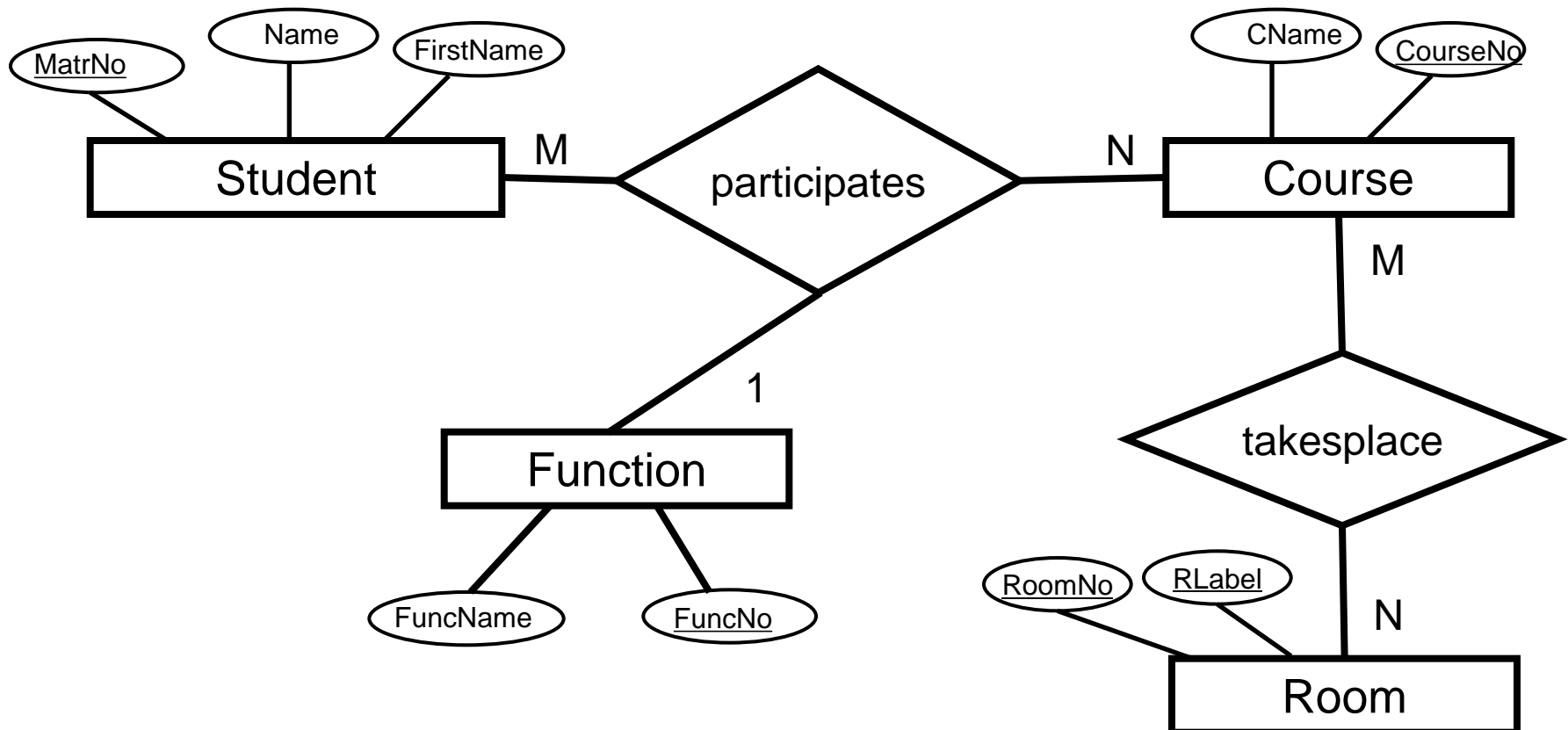
-- Don't worry. For the written exam, we will try to avoid these kinds of ambiguous requirements. If still unclear, you can also write down your own interpretation.

# Exercise 2



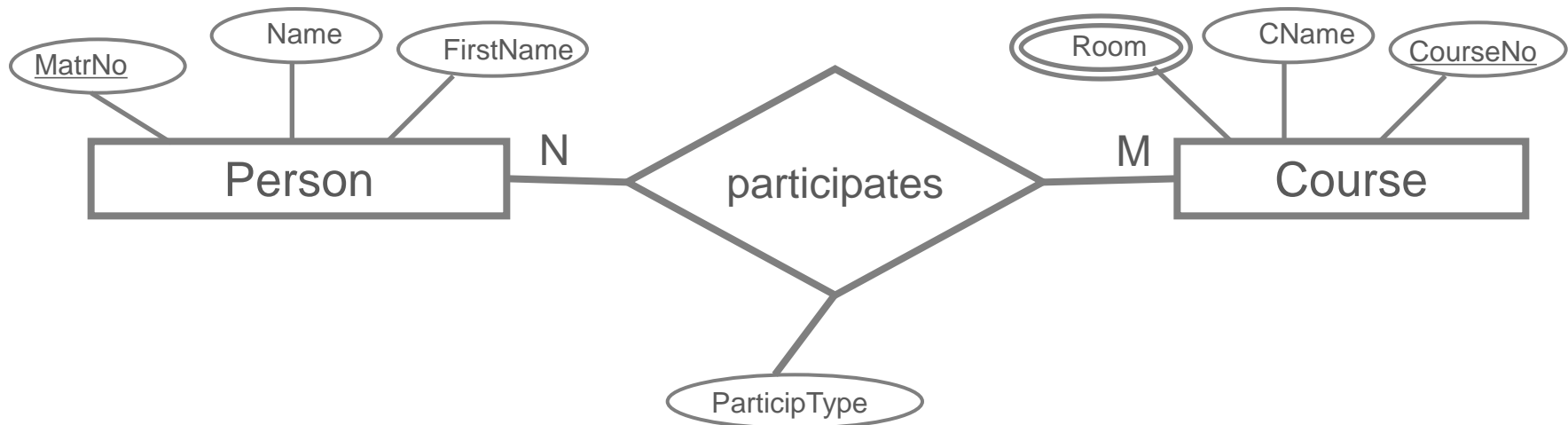
## Exercise 3

Separate entity type room and multiple rooms per course; Makes also sense if cardinality of Course  $\leftrightarrow$  ROOM would be M:1 (i.e., each course can only take place in one room).

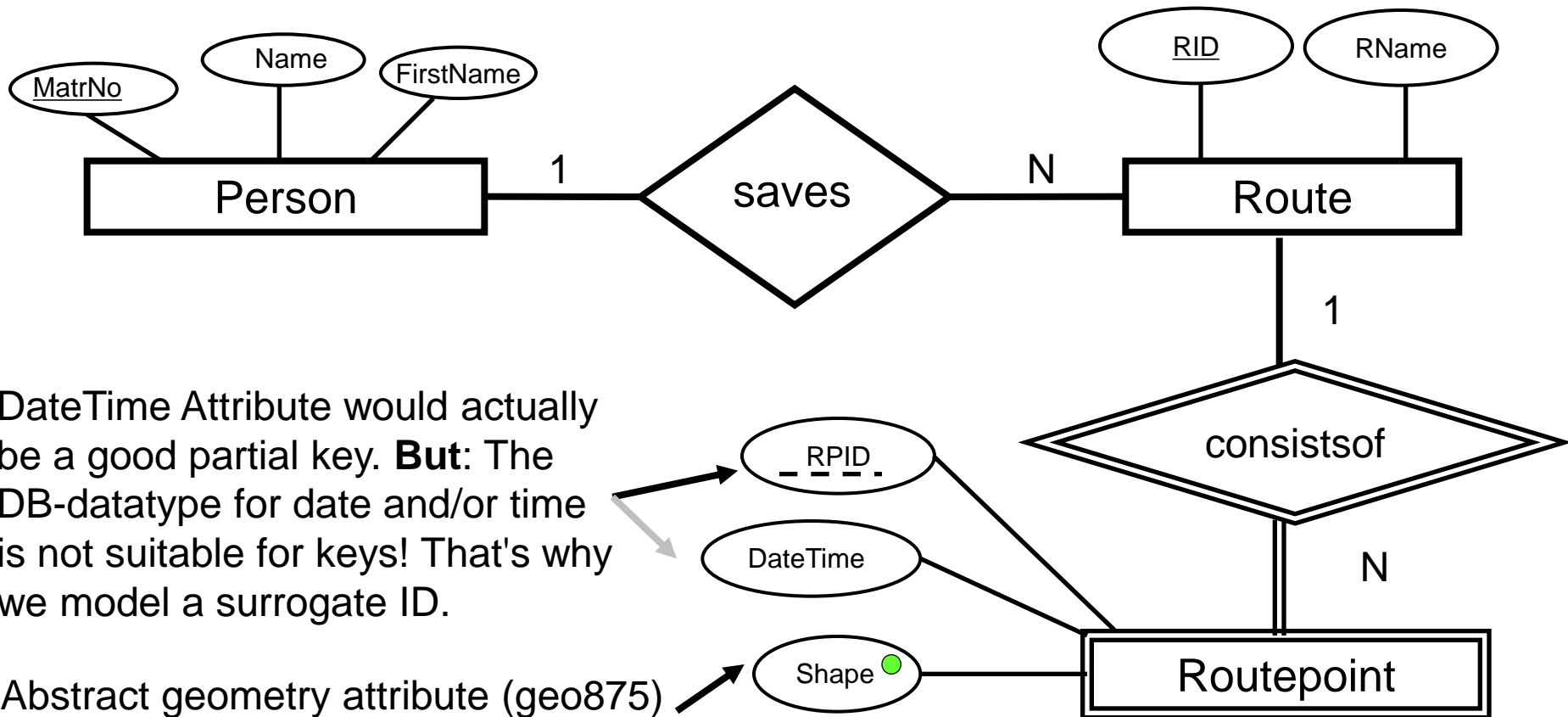


# Exercise 3 – Hidden entity types

Version with Attributes (not recommended because this hides entity types **room** and **participtype**)



# Exercise 4



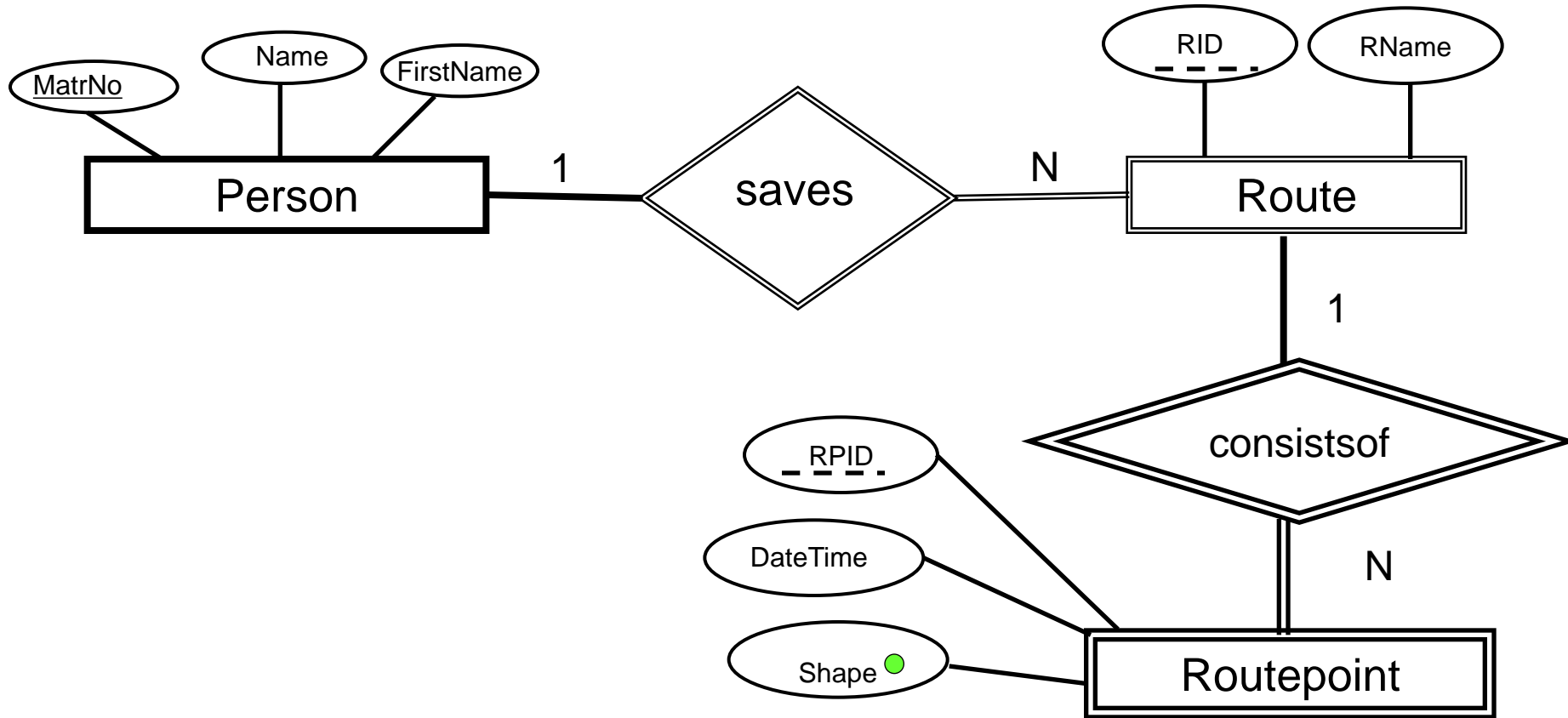
DateTime Attribute would actually be a good partial key. **But:** The DB-datatype for date and/or time is not suitable for keys! That's why we model a surrogate ID.

Abstract geometry attribute (geo875) reflecting a point with attributes such as x, y coordinates including spatial reference ,boundingbox,....

Not knowing the geometry type yet, the x, y coordinates modelled as two simple attributes for a point location would be very ok here.

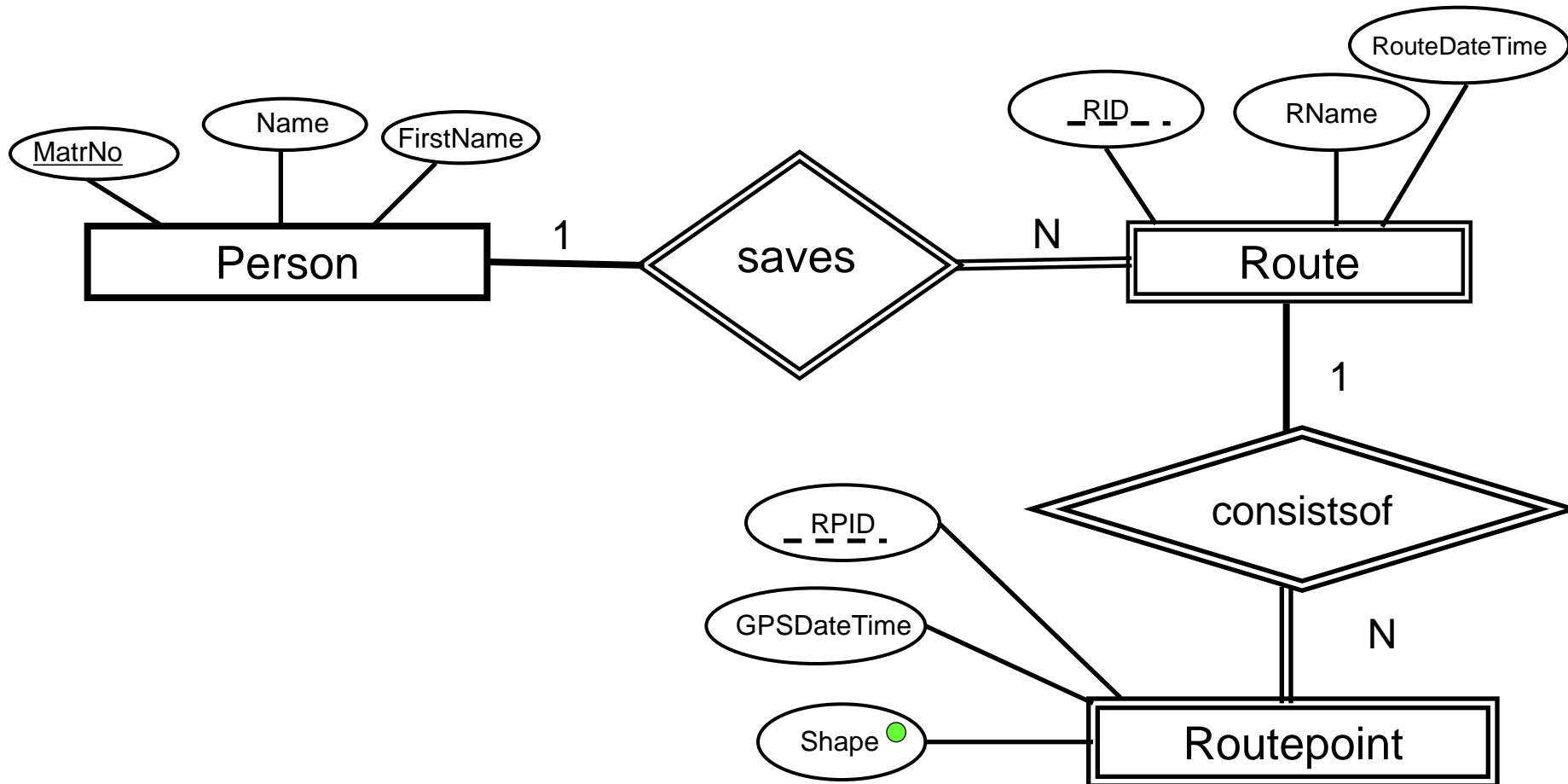
## Exercise 4 - Alternative A

If you understand that the existence of a route stored depends on a person, then Route is a weak entity type as well.



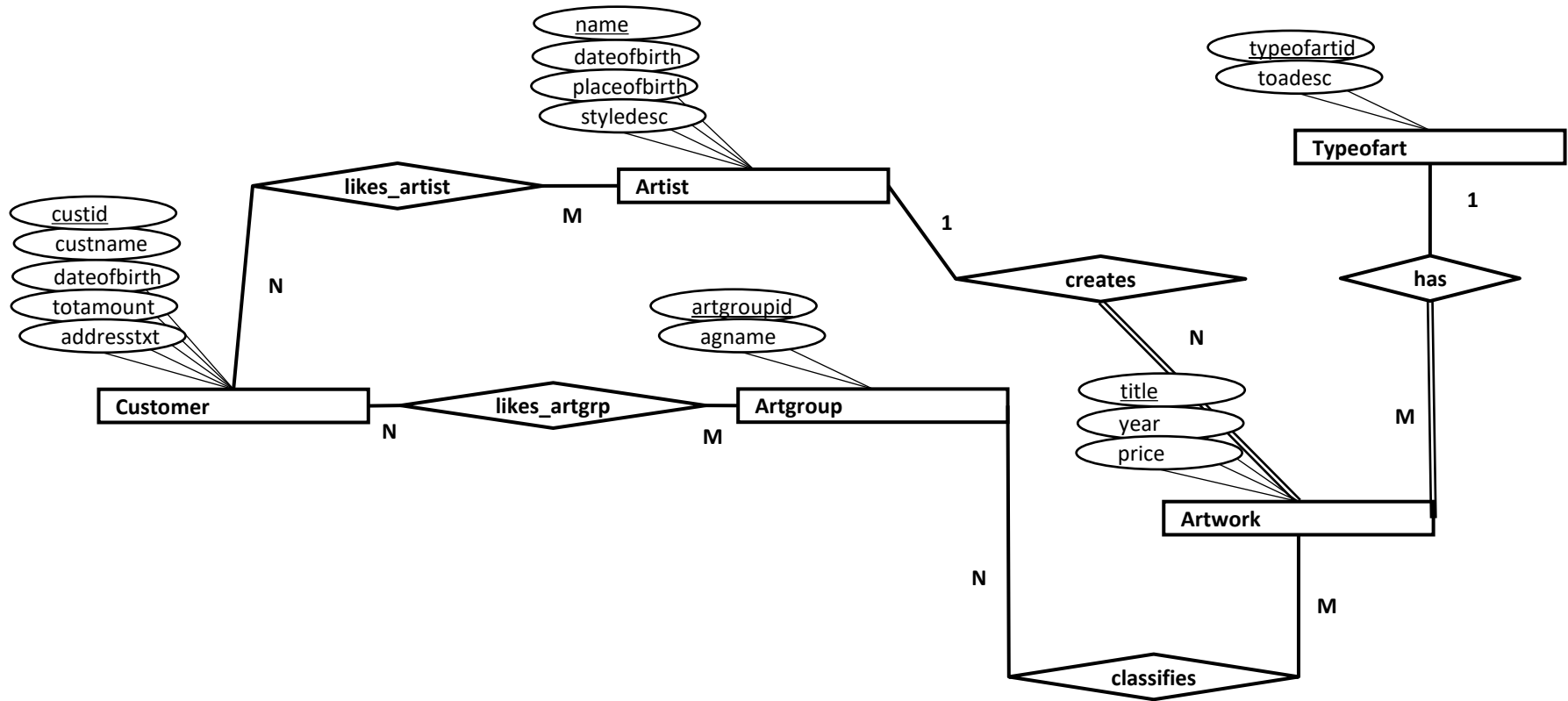
# Exercise 4 – Alternative B

Route and Routepoint can/should have separate dates – not the same meaning!



# Exercise 5

Lookup/enumeration **Typofart** should be modelled as entity type



## Exercise 6

- 6c) With a column fccode on the M side -> in the bestrest table. Why? The bestrest table needs to be linked to the foodcountrycat table. This happens by building a foreign key in the bestrest table. The foreign key points to the primary key field of the foodcountrycat table. So we can be sure that only a best restaurant with a valid category of food countries can be entered. This ensures referential integrity.
- 6d) With a own table opinion containing two foreign keys pointing to persid of person and to bestrestid of bestrest respectively. The primary key of table opinion is the combination of two fields persid and bestrestid. Additional columns opinontext and opiniondate are implemented.