

## One-One Relation

The simplest form of a binary relationship is a one-to-one relationship, in which an entity of one type is related to no more than one entity of another type. In the example of EMPLOYEE and AUTO, suppose that an employee is assigned exactly one automobile and an auto is assigned to exactly one employee. An e-r diagram for this relationship is shown in [here](#).

Representing a 1:1 relationship with the relational model is straightforward. First each entry is represented with a relation, and then the key of one of the relations is placed in the other. In this [figure](#) the key of EMPLOYEE is stored in AUTO, and the key of AUTO is stored in EMPLOYEE.

When the key of one relation is stored in a second relation, it is called a **foreign key**. In [figure](#), EmployeeNumber is a foreign key in AUTO, and LicenseNumber is a foreign key in EMPLOYEE. They are depicted by dashed underline. For a 1:1 relationship, the key of either table can be placed as a foreign key in the other table. Here the foreign key EmployeeNumber is placed in AUTO. With this design, we can navigate from EMPLOYEE to AUTO or from AUTO to EMPLOYEE. In the first case, we have an employee and want the auto assigned to that employee. To get the employee data, we use EmployeeNumber to obtain the EMPLOYEE. From this row, we obtain the LicenseNumber of the auto assigned to that employee. We then use this number to look up the auto data in AUTO.

Although the two designs in the [figure](#) are equivalent in concept, they may be different in performance. For instance if a query in one direction is more common than a query in the other, we may prefer one design to the other. Also, if the DBMS product is much faster in lookups on primary keys versus lookups on foreign keys, we might also prefer one design to another.