

## Weak Entity sets

Let's look at the following information:

Entity Employee

SSN

DOB

Name

Entity Dependents

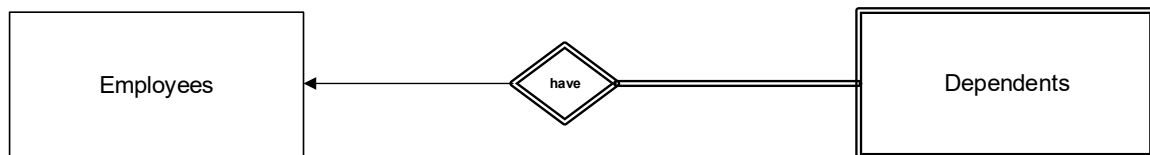
Name

Relationship

In this situation, the entity Dependents is a weak entity, because the rows in the Dependent table cannot be uniquely identified without knowing the employee they are associated with. It is entirely possible that 2 dependents with the same name and relationship exist (i.e. 2 sons called Tom Smith) for 2 different employees.

The entity Dependents is called a weak entity. It is dependent on the Employee entity to identify the rows (i.e. you must know which employee is associated with each dependent)

Using the author's notation, this is drawn as:



Let's examine why:

First – the key constraints and the participation:

Does an employee have at most one dependent? No – no arrowhead

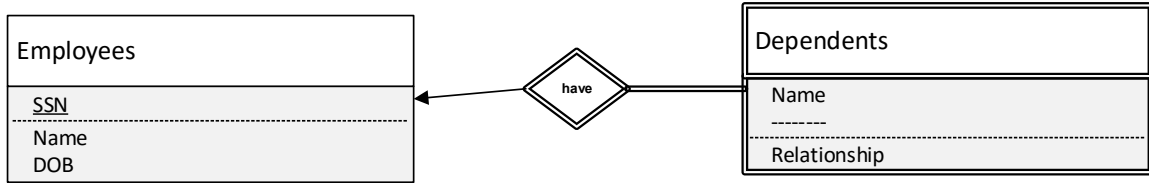
Does an employee have at least one dependent? No – normal size line

Does a dependent have at most one employee? Yes – arrowhead

Does a dependent have at least one employee? Yes – double line

Now we illustrate the fact that it is a weak entity by doubling the Entity box and the associated relationship box.

Now let's add in the attributes:



SSN is a key for Employee (i.e. each employee entity can be uniquely identified by their SSN) and so is underlined.

Name is a partial key for Dependents, since Dependents is a weak entity set, it is necessary to have the SSN of the strong entity set as well to uniquely identify the entity. Partial keys are denoted by an dashed underline.