

The identifying relationship set should not have any descriptive attributes, since any such attributes can instead be associated with the weak entity set.

In our example, the identifying entity set for *section* is *course*, and the relationship *sec_course*, which associates *section* entities with their corresponding *course* entities, is the identifying relationship. The primary key of *section* is formed by the primary key of the identifying entity set (that is, *course*), plus the discriminator of the weak entity set (that is, *section*). Thus, the primary key is {*course_id*, *sec_id*, *year*, *semester*}.

Note that we could have chosen to make *sec_id* globally unique across all courses offered in the university, in which case the *section* entity set would have had a primary key. However, conceptually, a *section* is still dependent on a *course* for its existence, which is made explicit by making it a weak entity set.

In E-R diagrams, a weak entity set is depicted via a double rectangle with the discriminator being underlined with a dashed line. The relationship set connecting the weak entity set to the identifying strong entity set is depicted by a double diamond. In Figure 6.14, the weak entity set *section* depends on the strong entity set *course* via the relationship set *sec_course*.

The figure also illustrates the use of double lines to indicate that the participation of the (weak) entity set *section* in the relationship *sec_course* is *total*, meaning that every section must be related via *sec_course* to some course. Finally, the arrow from *sec_course* to *course* indicates that each section is related to a single course.

In general, a weak entity set must have a total participation in its identifying relationship set, and the relationship is many-to-one toward the identifying entity set.

A weak entity set can participate in relationships other than the identifying relationship. For instance, the *section* entity could participate in a relationship with the *time_slot* entity set, identifying the time when a particular class section meets. A weak entity set may participate as owner in an identifying relationship with another weak entity set. It is also possible to have a weak entity set with more than one identifying entity set. A particular weak entity would then be identified by a combination of entities, one from each identifying entity set. The primary key of the weak entity set would consist of the union of the primary keys of the identifying entity sets, plus the discriminator of the weak entity set.

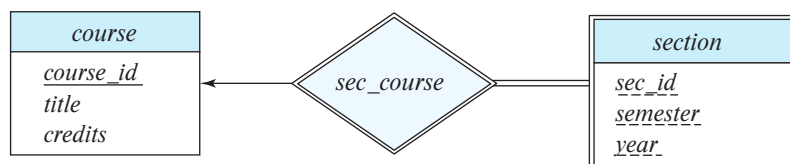


Figure 6.14 E-R diagram with a weak entity set.