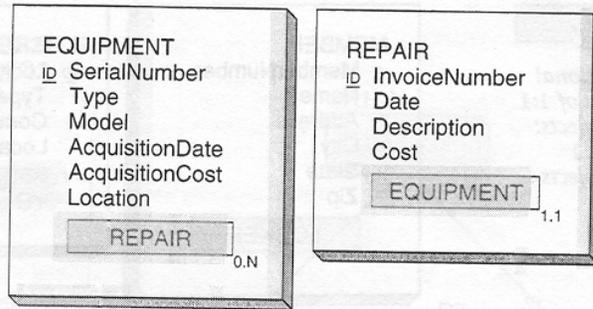


► FIGURE 7-8

Example Relational Representation of 1:N Compound Objects:
 (a) Example 1:N Compound Objects and (b) Their Representation



(a)

EQUIPMENT (SerialNumber, Type, Model, AcquisitionDate, AcquisitionCost, Location)

REPAIR (InvoiceNumber, Date, Description, Cost, *SerialNumber*)

(b)

Consider 1:N relationships and N:1 relationships. **Figure 7-8(a)** shows an example of a 1:N object relationship between EQUIPMENT and REPAIR. An item of EQUIPMENT can have many REPAIRs, but a repair can be related to only one item of EQUIPMENT. The objects in figure 7-8(a) are represented by the relations in figure 7-8(b). Observe that the key of the parent is placed in the child.

► FIGURE 7-9

General Transformation of 1:N Compound Objects

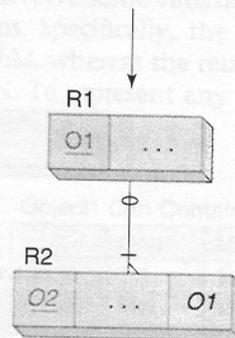
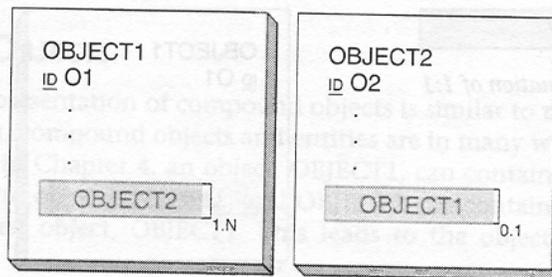


Figure 7-9 shows the general transformation of 1:N compound objects. Object OBJECT1 contains many objects OBJECT2, and object OBJECT2 contains just one OBJECT1. To represent this structure by means of relations, we represent each object with a relation and place the key of the parent in the child. Thus, in Figure 7-9 the attribute O1 is placed in R2.

If OBJECT2 were to contain many OBJECT1s and OBJECT1 were to contain just one OBJECT2, we would use the same strategy but reverse the role of R1 and R2. That is, we would place O2 in R1.

The minimum cardinalities in either case are determined by the minimum cardinalities of the object attributes. In figure 7-9, OBJECT1 requires at least one OBJECT2, but OBJECT2 does not necessarily require an OBJECT1. These cardinalities are shown in the data structure diagram as an oval on the R1 side of the relationship and as a hash mark on the R2 side of the relationship. These minimum cardinality values are simply examples; either or both objects could have a cardinality of 0,1, or some other number.