entity

Which we introuduced Chapter 1. A number of suppiliers and ship different items to pine valley furniture.the items are assembled into products that are sold to customers who order the produceds.each customer order may include one or more lines corresponding to the products appearing on that order.

The diagram in figure 2-1 shows the entities and rtelationships for this company. (attributes are omitted to simplify the diagram for now .)entities (the objects of the organization )are represented by the rectangle symbol ,whereas relationship between entities are represent by lines connecting the related entities .the entities in figure 2-1 include the following.

Customer A person or an organization that has ordered or might order products. Example:L.L.Fish Furniture.

Product A type of furniture made by pine valley furniture that may be ordered by customers.note that a product is noe a specific bookcase ,because individual bookcases do not need to be tracked .example :a 6-foot ,5-shelf .oak bookcase called o600.

Order the transaction associated with the sale of one or more products to a cuseomer and identified by a transation number form sales or accounting. Example:the event of L.L.Fish buying one product o600 and four products o623 on September 10,2010.

Item a type pf component that goes into making one or more products and can be supplied by one or more suppliers .example:a 4-inch ball-bearing caster called 1-27-4375.

Supplier another company that may provide items to pine valley furniture.examlple:sure fasteners ,inc.

Shipment the transaction associated with itens received in the same package by pine valley turniture from a supplier .all items in a shipment appear on the bill-of-lading document .example:the receipt of 300 1-27-4375 and 200 1-27-4380 items from sure fasters,inc,on sepember 9,2010.

Note that it is important to clearly define ,as metadata,each entity.foe example ,it is important to know that the customer entity includes person or organizations that have noe yet perchased products from pine valley furniture.it is common for different departments in an organization to have different meanings for zhe same term(homonyms).for example ,accounting may designate as customers only those persons or organizations that have ever made a purchase ,thus excluding potential customers,whereas maeketing designates as customers anyone they have contacted or who has purchase from pine valley furniture or any know computer an accurate and thorough erd without clear metadata may be interpreted in different people .we outline good naming and definition conventions as we formally introduce e-r modeling throughout this chapter.

The symbols at the end of each line on an erd soecify rtelationship cardinalities,which represent how many entities of one kind related to how mang entities of another kind. On examining figure 2-1,we can see that these cardinality symbols espree the following business rules:

1.a supplier may supply many items(by”may supply”,we mean the supplier may not supply any items。Each item is supplied at least one supplier ).see annotations in figure 2-1 ,that correspond to underline words.

2.each item must be used in the assembly of at least one product and may be used in many products .conversely ,each product must use one or more items

3.a supplier may send many shiplier .however ,each shipment must be sent by exactly one supplier.notice that sends and supplies are sparate concepts.a supplier may be able to supply an item but may not yet have sent any shipments of that items.

4.a shipment must include one (or more)items.an item may be includedon several shipments .

There are actually two business rules for each relationship ,one for each diecition from one entity to the other .note that each of these business rules roughly follows a certain grammer.

The notation we use for E-R diagrams is shown in Figure 2-2.A indicated in the previous section ,there is no industry-standard notation (in fact, you saw a slightly simpler