Composite Attributes: Name, which can be broken down into forename and surname. Address, which can contain the following attributes of street address, city, state, zip code.

Mutlivalued Attributes: An attribute that may take on more than value value for a given entity. Example: {Skill}.

Multivalued attributes may appear multiple times, while composite attributes like Employee Name and Payroll Address are likely to occur once. (Reference from the Book)

1. **2-38 A)** Composite Attributes – The following all have meaningful component parts, which can be broken up into more detailed attributes:

Salesperson < Salesperson Name (Forename, Surname)

Customer < Customer Name (Forename, Surname)

Customer < Customer Address (Street Address, City, State, Postal Code)

Vendor < Vendor Address (Street Address, City, State, Postal Code)

Work Center < Work Center Location (Street Address, City, State, Postal Code)

Employee < Employee Name (Forename, Surname)

Employee < Employee Address

**2-38 B)** Multivalued Attributes – A multivalued attribute may take on more than one value within a given entity. The following all are subject to have multiple values:

Product < {Product Description}

Raw Material < {Material Name} – I changed my mind here – If there is an individual material id, it seems unlikely that material name would be multivalued.

Skill < {Skill}

Customer < {Customer Address }

**Redrawn ERD for 2-38 with Composite and Multivalued Attribute updates reflected- Note that relationships/cardinalities between entities is flawed (email out to professor to check on how to make different types of relationships on Vizio):**



**2-38 C)** Is it possible for the same attribute to be composite and multivalued?

I believe that it is possible for a singular attribute to be both composite and multivalued. When looking at Figure 2.22, we see Customer Name and Customer Address. Supposedly, Customer Name could be multivalued if a person were to enter a nickname, or potentially a maiden name. Customer Address could be multivalued if both the shipping and the billing address were registered. I could see the latter instance being a more clear example.

1. 2-39 C)



Each course may have zero or more sections. There is a one to many relationship between the two entities.

At first, I used Semester ID as a PK for Entity = Section, but then I thought better of it. The composite attribute of Semester ID would seemingly be better off as its own entity, Semester. Or we could use Section Number as the pk. The problem with using semester id as a primary key under the Section entity would be the lack of differentiation – We wouldn’t be breaking course up by section, we’d be breaking it up by a timestamp. If you follow the flow, having Semester and Year as the PK against CourseID would render multivalued attributes for Section Number.

Course can have zero or many sections numbers.

2-39 I)



\*Royalty can be associated/have relationship with Book and Author.

Pub can publish many books.

Many books can have many authors.