**Chapter 3 The Enhanced E-R Model**

**Chapter Overview**

The purpose of this chapter is to present some important extensions to the E-R model (described in Chapter 2) that are useful in capturing additional business meaning. In particular, we describe two types of extensions to the E-R model. First, the enhanced entity-relationship (EER) model includes constructs for supertype/subtype relationships. Second, the inclusion of new notation for business rules allows the designer to capture a broader range of constraints on the data model than were previously available.

**Chapter Objectives**

1. Introduce the concept of supertype/subtype relationships, and prepare the students to recognize when to use these relationships in data modeling.

2. Describe the use of specialization (top-down perspective) and generalization (bottom-up perspective) as complementary techniques for defining supertype/subtype relationships.

3. Introduce a notation for specifying both completeness constraints and disjointness constraints when modeling supertype/subtype relationships.

4. Help students gain sufficient perspective so that they recognize when to use (and when not to use) supertype/subtype relationships in realistic business situations.

5. Describe the basic premises of a business rules paradigm.

6. Discuss the concept of a universal data model and its use in packaged data models.

**Key Terms**

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| Attribute inheritance | Generalization | Subtype discriminator |
| Completeness constraint | Overlap rule | Supertype |
| Disjoint rule | Partial specialization rule | Supertype/subtype hierarchy |
| Disjointness constraint | Specialization | Total specialization rule |
| Enhanced entity-relationship (EER) model | Subtype | Universal data model |
| Entity cluster |  |  |