TOPICS

Fundamentals

Structured and Object-Oriented Analysis

Formal and Automated Techniques

Data Modeling

Data Objects, Attributes and Relationships

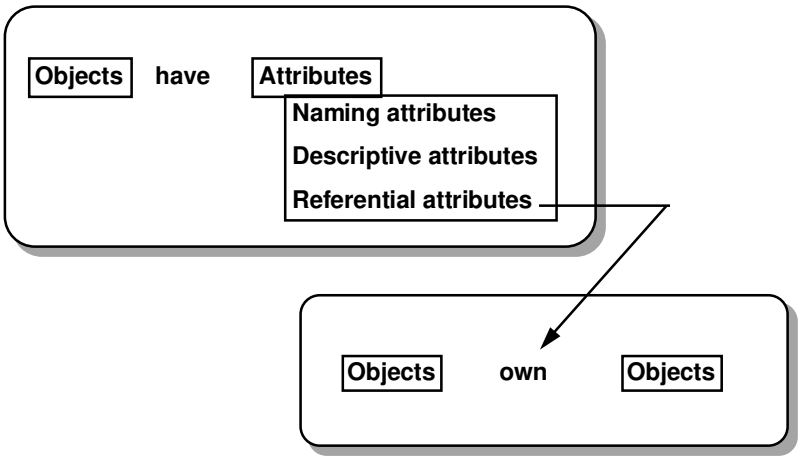
OOA concepts arose out of data-intensive analysis techniques (called *data modeling* or *information maodeling*) that have been in existence for years (especially in database systems).

Recent uses of data modeling are seen in defining data formats for interchanging data between CAD systems, computers, and manufacturing organizations.

Some terms:

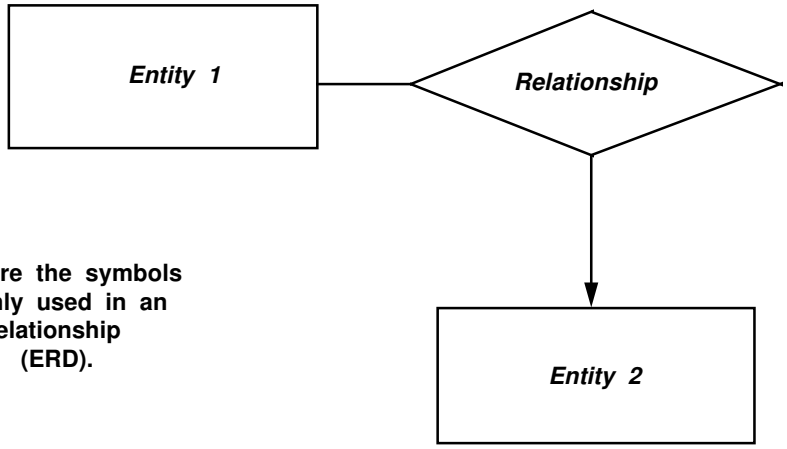
- **schema - data model used in databases**
- **protocol - data model used in digital communications**
- **framework - data models used to interchange data between CAD systems and manufacturing organizations**

Data Objects, Attributes, and Relationships



Data Modeling

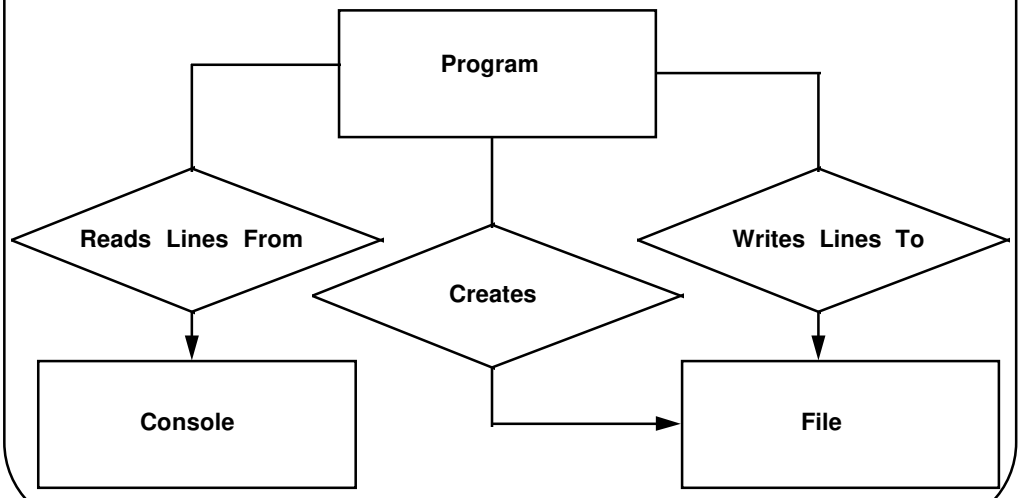
Entity-Relationship Diagrams



These are the symbols commonly used in an Entity-Relationship Diagram (ERD).

Data Modeling, Continued

Entity-Relationship Diagrams - Example



Automated Tools

- are often graphically-oriented
- may provide consistency checking
- support the development of the data dictionary
- usually support the development of DoD-STD-2167A documentation