

Chapter 2, Representation and Patterns:
An Introduction to the REA Enterprise Ontology

True/False Questions

1. Representation and modeling are important for understanding enterprise information systems.

Ans: True

2. The more closely a model resembles the real thing it represents, the better the model is.

Ans: True

3. Representations are created only at the type level of abstraction.

Ans: False

Response: representations may be created at different levels of abstraction, including the type and token levels.

4. A token is a category of objects.

Ans: False

Response: a token is an individual object, a type is a category of objects.

5. Because a token represents an individual object, there can be only one way to represent each token in a model.

Ans: False

Response: for example, the square shape may be represented by using the word square or by drawing a square, as in exhibit 2-1.

6. Reality-to-category mapping is a very important concept in building enterprise system models to make the complexity of representing thousands of objects manageable.

Ans: True

7. Patterns allow us to make predictions about future events and to make sense of the present based on our past experiences.

Ans: True

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8. Object patterns are sequences of events that typically occur in combination with each other.

Ans: False

Response: those are script patterns; object patterns are expected groupings of things and the relationships between them

9. The script patterns we develop based on past experiences help us more often than not in understanding our present and future experiences.

Ans: True

10. Script patterns may not be invoked correctly unless the correct context is understood.

Ans: True

11. The REA in the REA Enterprise Ontology stands for “Relationships between Entities and Atttributes.”

Ans: False

Response: REA stands for Resources, Events, and Agents

12. Something that has economic value but has no physical substance and is consumed by an enterprise's operations is a resource in the REA ontology.

Ans: True

13. In the REA ontology, events are activities within an enterprise that need to be planned, controlled, executed, and evaluated.

Ans: True

14. In the REA ontology, only individuals fit into the agent category.

Ans: False

Response: agents may be individuals, departments, divisions, or organizations.

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15. A value system level REA model focuses on the individual steps involved in accomplishing events in an enterprise.

Ans: False

Response: that is the task level; the value system level focuses on the resource exchanges between the enterprise and its various external business partners.

16. A supply chain is made up of the value system level models of interconnected business partners.

Ans: True

17. A value chain level REA model focuses on the resource flows between interconnected business processes and on the economic events that accomplish the resource flows.

Ans: True

18. The term *business process* as used in practice always describes an entire transaction cycle.

Ans: False

Response: business process is a term widely used in practice to mean anything from a single activity of producing a report to an entire transaction cycle. For this textbook business process describes an entire transaction cycle.

19. A business process level REA model focuses on one or more transaction cycles in an enterprise's value chain, expanding the representation to include various types of resources, events, agents, and relationships among them.

Ans: True

20. A task level REA model provides a broad-level overview of the business-entrepreneur script.

Ans: False

Response: a task level REA model focuses on the individual steps involved in accomplishing events in an enterprise.

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Multiple Choice Questions

21. For which of the following reasons should we build models when designing systems?
- A) To help us to visualize a system as it is.
 - B) To help us to visualize a system as we want it to be.
 - C) To better understand the system we are developing.
 - D) To simplify a complex system because we can't comprehend it in its entirety.
 - E) All of the above.

Ans: E

22. A symbol is a
- A) Surrogate for a real construct.
 - B) Musical percussion instrument.
 - C) Small metal or plastic cap worn to protect the finger that pushes a needle in sewing.
 - D) Metal ring around which a rope splice is passed in sailing.
 - E) Meeting or conference for discussion of some topic.

Ans: A

23. In database design, individual objects are referred to as
- A) Types
 - B) Tokens
 - C) Relations
 - D) Divisions
 - E) Classes

Ans: B

24. In database design, categories of objects are referred to as
- A) Individuals
 - B) Tokens
 - C) Relationships
 - D) Types
 - E) Distinctives

Ans: D

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25. Consider the following items:
- a red Volkswagon Beetle belonging to Cheryl VanBuren
 - a red Corvette belonging to Walter Cherrington
 - a blue Z71 pickup truck belonging to Jim Joseph
 - a green Volkswagon Beetle belonging to Amy Patrick
 - a red Corvette belonging to Chris Wolverine
 - a blue Z71 pickup truck belonging to Mary Craig
- To represent these items in a conceptual model at the type level, which symbol is most appropriate?
- A) Car
 - B) Vehicle
 - C) Name
 - D) Color
 - E) Amy Patrick

Ans: B

26. Patterns are used to
- A) Better understand the environment around us.
 - B) Make predictions about future events based on our past experiences.
 - C) Make sense of the present based on our past experiences.
 - D) Learn about novel objects by considering their similarities to familiar objects.
 - E) All of the above.

Ans: E

27. Which of the following objects belongs in an object pattern for an elementary school located in Minnesota?
- A) Nuclear physics lab
 - B) Palm tree
 - C) Teacher
 - D) Anesthesiologist
 - E) Silo

Ans: C

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28. When pattern matching is used for problem solving in facing what looks like a new problem
- A) A new solution is applied to the old problem without any adaptation of the new solution.
 - B) An old solution is applied to the new problem without any adaptation of the old solution.
 - C) A new solution is applied to the old problem, adapting the solution for anything that is different in the old situation.
 - D) An old solution is applied to the new problem, adapting the solution for anything that is different in the new situation.
 - E) It is like re-inventing the wheel every time a new problem is solved.

Ans: D

29. The “R” in REA enterprise modeling stands for
- A) Relationships
 - B) Resources
 - C) Reciprocates
 - D) Representation
 - E) Reality

Ans: B

30. The “E” in REA enterprise modeling stands for
- A) Entity
 - B) Entrepreneur
 - C) Exchange
 - D) Enterprise
 - E) Event

Ans: E

31. The “A” in REA enterprise modeling stands for
- A) Agents
 - B) Attributes
 - C) Acquisitions
 - D) Artificial constructs
 - E) Applications

Ans: A

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32. Resources in the REA enterprise ontology are defined as
- A) Things of economic value provided or consumed by an enterprise's activities and operations.
 - B) Activities within an enterprise that need to be planned, controlled, executed, and evaluated.
 - C) Individuals, departments, divisions, or organizations that participate in the control and execution of events.
 - D) Interconnected business processes.
 - E) Anything from a single activity of producing a report to an entire transaction cycle.

Ans: A

33. The REA ontology views enterprises at _____ levels of detail.
- A) zero
 - B) two
 - C) four
 - D) six
 - E) ten

Ans: C

34. Which of the following are considered agents in the REA ontology?
- A) Individuals
 - B) Departments
 - C) Divisions
 - D) Organizations
 - E) All of the above

Ans: E

35. A _____ level model in the REA enterprise ontology focuses on the individual steps involved in accomplishing events in an enterprise.
- A) Value system
 - B) Value chain
 - C) Business process
 - D) Task
 - E) Context

Ans: D

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36. Which of the following is **not** part of the business-entrepreneur script?

- A) The enterprise gets some money.
- B) The enterprise purchases equipment and raw materials.
- C) The enterprise sells finished goods.
- D) The enterprise is damaged by a flood.
- E) The enterprise repays money and lives off its profit.

Ans: D

37. Which level of the REA enterprise ontology is based specifically on the business-entrepreneur script?

- A) Value system
- B) Value chain
- C) Business process
- D) Task
- E) None of the above

Ans: B

38. Which of the following objects is an economic event?

- A) Materials inventory
- B) Cash
- C) Purchase of materials
- D) Purchasing agent
- E) Supplier

Ans: C

39. What is the primary deliverable expected to be attained using the REA enterprise ontology?

- A) An operational enterprise-wide transaction database
- B) A complete strategic analysis of the enterprise's business plan
- C) A set of program code used to connect different modules of a best of breed ERP system
- D) A blueprint for re-engineering the enterprise workflow
- E) An optimized linear programming solution for the logistical issues of the enterprise

Ans: A

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40. System flowcharts, data flow diagrams, and fishbone diagrams are examples of representations at which level of the REA enterprise ontology?

- A) Value chain level
- B) Business process level
- C) Task level
- D) Value system level
- D) Supply chain level

Ans: C

Short Answer Questions

41. What is the difference between a token and a type?

Ans: A token is an individual object whereas a type is a category of objects.

42. _____ allow people to make predictions about future events and to make sense of the present.

Ans: Patterns

43. What kind of pattern depicts things and the relationships between them?

Ans: Object pattern

44. What is a script pattern?

Ans: A sequence of events that typically occur in combination with each other.

45. What does each letter of the acronym REA represent?

Ans: R = resources, E = events, A = agents

46. What are resources in the REA enterprise ontology? Name two common resources.

Ans: Resources are things of economic value (with or without physical substance) that are provided or consumed by an enterprise's activities and operations. Examples include cash, raw materials, equipment, finished goods, labor, and others.

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47. What are events in the REA enterprise ontology? Name two common events.

Ans: Events are activities within an enterprise that need to be planned, controlled, executed, and evaluated. Examples include sales, acquisitions, cash receipts, cash disbursements, and others.

48. What are agents in the REA enterprise ontology? Name two common agents.

Ans: Agents are individuals, departments, divisions or organizations that participate in the control and execution of events. Examples include employees, vendors, customers, investors, creditors, and others.

49. What symbol is used to represent resource exchanges on a value system level REA model?

Ans: arrows

50. What pattern is used for modeling the task level in the REA enterprise ontology?

Ans: No pattern has yet been identified for the task level.

Essay Questions

51. Explain how an object and/or script pattern helped you in the past to understand something in your life. In your essay, be sure to describe the pattern you applied, the situation in which you applied it, and how the pattern was helpful.

Ans: Answers will vary based on students' personal experiences but should include the use of the pattern to apply past experiences to new situations and allowed them to make predictions as to what to expect in the new situation.

52. Why is context important in determining what script is evoked in a person's mind? Give an example to support your conclusion.

Ans: Examples will vary but essay should communicate that people typically have variations of the same script stored in memory and the context is necessary to determine which version of the script is triggered to help understand the situation. Example given in text was for traditional romantic script versus romantic tragedy.

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53. Explain the purpose of each of the four levels of the REA enterprise ontology.

Ans: The value system level focuses on resource exchanges between an enterprise and its external business partners. The value chain level focuses on resource flows between interconnected business processes and the economic events that accomplish those resource flows. The business process level focuses on one or more transaction cycles in the value chain, expanding the representation to include various types of resources, events, agents, and relationships among them. The task level focuses on the individual steps involved in accomplishing events; these are activities that may be changed or eliminated and should not serve as foundational elements in an enterprise system.

54. List the scenes in the business-entrepreneur script and name the most likely actors and props for each scene.

Ans: Scene 1 - The enterprise gets some money; likely actors – investors, creditors, enterprise executives; likely props – money. Scene 2 – The enterprise engages in value added exchanges such as purchase equipment and raw materials, purchase labor, manufacture finished goods, and sell finished goods; likely actors – employees, suppliers, customers; likely props – raw materials, finished goods, equipment, money. Scene 3 – The enterprise pays back the money and lives off the profit; likely actors – investors, creditors, employees; likely props – money.

55. For what purposes should an enterprise use the REA enterprise ontology?

Ans: The primary goal is to provide a structure for an enterprise-wide database in which to store disaggregated transaction data; REA also facilitates high-level strategic analysis, provides a means for identifying artificial constructs that may be targets for re-engineering, and provides a common building block that may facilitate system integration.