

CH. 12. REMEMBERING - STUDY GUIDE

1. What is the general technical term for a stimulus that reminds us of something? Illustrate your answer using the example from Casablanca.
2. What does remembering refer to? How does it differ from reminding? Construct an example that illustrates the difference.
3. Critically comment on the following statement: Remembering involves retrieving a memory that has been stored at an earlier time.
4. Evaluate the following statement: Remembering is behaving to remind oneself.
5. To the question "What did you do last night?" the respondent replied, "Studied zoology." Was the question necessary for this response to occur at that moment? Was the question sufficient (i.e., was only the question required) for this response to occur?
6. Comment on the following statement from the reading: "There is no law relating past events to current performance: The past is fixed, and current behavior is variable". What is the significance of this statement?
7. Why is such stress placed on explaining current behavior as a function of current variables?

THE ROLE OF INTERPRETATION IN THE ANALYSIS OF REMEMBERING

8. Comment on the following: The study of complex human behavior is a subject for interpretation not experimental analysis.
9. Read the paragraph containing the "explanation" of the fact that when a person is asked "What is eight times eight", he responds "64". What is the major point of this example?

Short-Term Memory Procedures

10. Review the procedures and major findings of the short-term memory experiment (see **Figure 12.1** and pp. 225-226).
11. Indicate reasons why performance in this procedure is likely affected by experience outside the procedure. Consider the stimuli that guide responding, the response itself, and the reinforcement contingencies present in the procedure.
12. Critically evaluate the following statement: Varying the retention interval in a short-term memory procedure may be viewed as analogous to varying the CS-US interval (i.e., the interstimulus interval) in a classical-conditioning procedure.
13. Describe evidence that indicates that errors occurring in short-term memory procedures are influenced by prior experience.

14. What are the implications of the foregoing for the possibility of an experimental analysis of observations obtained with short-term memory procedures? **Paired-Associate Memory Procedures**

15. Review the *paired-associate procedure*—what are the nominal stimuli, what are the nominal responses?

16. From a biobehavioral perspective, describe the actual stimuli, responses, reinforcers, and contingencies present in the paired-associate procedure.

17. Critique the following statement: The subject's task in paired-associate learning is to emit a response to each stimulus that corresponds to the response that is paired with that stimulus. [Hint: Is the response to be emitted a member of same operant as the response that is paired with the stimulus?] See **Figures 12.2 and 12.3**.

18. Explain the following statement from the readings: "Our diagrams [of paired-associate learning] do not illustrate the acquisition of an environment-behavior relation, they illustrate the transfer of such a relation."

19. Under what conditions does the effective transfer of an environment-behavior relation ordinarily occur?

20. Given the interpretation of paired-associate learning in the book, is this procedure better regarded as an instance of reminding or remembering? Justify your answer.

Experimental evidence: The generation effect

21. Summarize an experimental procedure and result that illustrate the *generation effect*.

22. Interpret the generation effect in terms of the processes employed in the treatment of paired-associate learning.

23. Interpret the finding that recall can be superior to recognition in some cued-recall procedures.

MEMORY AS PROBLEM SOLVING

24. Review the three conditions that define a problem as that term is used technically.

25. Using the question in the readings "What was the last novel that you have read?" indicate how this question meets each of the three criteria that define a problem.

26. Suppose that immediately after answering the above question, someone else asked you the very same question? Would this question also constitute a problem in the technical sense? Justify your answer.

27. Suppose that you asked someone the following question: "About how far is it from San Francisco to Los Angeles?" Would this question constitute a problem for a bus driver who regularly traveled between those two cities? Would the same question constitute a problem for a resident of another state who had never driven between these two cities? Justify your answer. In general, can a situation be defined as a problem independently of the person or the situation?

28. Although remembering is an instance of problem solving, in what ways does remembering differ from some cases of problem solving?

Recall Procedures: The Role of Supplementary Stimuli

29. As with any example of problem solving, the solution occurs by the m _____ of s _____ stimuli.
30. The name given to behavior whose function is to produce supplementary stimuli in remembering is called m _____ behavior. Is *mnemonic behavior* a different type of behavior from other behavior (i.e., does it involve unique biobehavioral processes)? Comment on the relation of mnemonic behavior to observing behavior.
31. From what you know about priming, does a given environment typically affect of strength of only one or of many responses? (See pp. 242 ff.) Describe the characteristics of *priming* when the environment guides one clearly dominant response and when it guides several strong responses. What should be the effect when the primed responses are similar in topography, are different in topography? Explain. What effect would these differences have on the ability of priming stimuli to evoke responses that function as mnemonic behavior?
32. Describe an example that illustrates the additive effect of priming on the strength of responding.
33. Describe an example that illustrates that the behavior evoked by a stimulus may produce stimuli that prime still other responses? (Hint: The example of priming with arbitrary relations is relevant; see p. 250.) Comment on the role of recurrent connections in behaviorally mediated priming.
34. Review the discussion of the role of frames, tacts, and various mnemonic responses on the interpretation of remembering which novel was read last. What are their uncertainties in specifying the critical events? Are these uncertainties avoidable?
35. If you engage in mnemonic behavior, will a target response always occur? Must the target response necessarily be correct? Explain your reasoning.
36. Using the example of remembering where you were the night before last, indicate how it illustrates a progressive narrowing of primed responses.
37. Try to remember something that is not immediately apparent to you, such as where you were two weeks ago at this time of day. Interpret your remembering according to a process of successive narrowing of priming.
38. Review the discussion of why we may fail to recall the names of persons to whom we were previously introduced. Use the technical terms *echoic response* and *tact* in your account.

Reminiscences

39. What is a *conditioned perception*, and how does it differ from an unconditioned perception? (Hints: What stimuli guide these two perceptual responses; what is the nature of the two responses; what selects and maintains them?)
40. Why might we close our eyes when trying to remember something? Is this behavior likely to be acquired or innate? If acquired, what reinforces this behavior? Should we close our eyes more often when trying to remember a visually guided response or an auditorily guided response? Explain.
41. What is the reasoning behind the claim that "the perceptual behavior we experience in reminiscence must have been conditioned at the time of the original event"?
42. Comment on the following: When we reminiscence, we call up again the perception that was stored when the experience originally occurred.

43. Are there differences between the mnemonic responses that produce incorrect and correct target responses? Explain.

Recognition of the Target Response

44. Often, our overt behavior differs when we are remembering as opposed to when the environment reminds us of the target response. In what ways does our overt behavior differ, and how can these differences be interpreted?

45. How do we know when we have solved a problem in a *codified task*, such as a long division problem? Comment on the differences when a target response occurs as a result of remembering.

46. In general, what are some indications that the "correct" target response has been remembered? Illustrate your answer with an example.

MNEMONIC BEHAVIOR: ACQUISITION PROCEDURES

47. Is remembering—both the mnemonic behavior through which it occurs and the accuracy of the target response—affected by only the conditions that are present when we remember? Explain, making reference to acquisition.

48. Four "types" of mnemonic behavior are described in this section: r _____, i _____, o _____, and e _____.

Rehearsal

49. What conditions foster the acquisition of rehearsing behavior, or rehearsal?

50. Is saying a telephone number while looking in a phone book the same response as saying the number to ourselves when the phone book is not visible? Explain, using the technical terms *tact* and *echoic*.

51. Under what conditions is *rehearsal* apt to be a particularly effective mnemonic behavior?

52. Interpretations often assume that when we sense a stimulus, we covertly respond with the name of that stimulus (i.e., we covertly *tact* the stimulus). Discuss this assumption in light of what you know about priming. Must we be aware of *tacting* a stimulus in order for the interpretation to be plausible (i.e., in order for naming to be primed)? (Hint: Recall the discussion of the relation between awareness and priming on p. 251.)

53. Review the concept of a behavioral chain (see p. 104). Discuss rehearsal as a behavioral chain. What is *chunking*, and how might it affect and exemplify behavioral chaining? Use the technical term *intraverbal response* in your answer. (See the **Table** on p. 337.)

54. Is recalling a sentence the same as recalling the letters that make up that sentence? Explain. If they are not the same, then how can you interpret the fact that chunking improves the ability to emit a string of letters when the string is the target response?

55. Rehearsal is said to increase the number of stimuli that guide the rehearsed response. Under what conditions should this be the case? Are there any circumstances in which rehearsal might impair remembering?

56. Simply rereading something many times may not improve the likelihood that it is remembered. Explain why is this so, referring to differences in the stimuli that guide reading and remembering?

57. Study the last paragraph in this section, and then summarize in your own words the major points concerning the effects of rehearsal on remembering.

58. Why might rehearsal, or the selection of environment-behavior relations in general, produce more effective remembering when it occurs at widely spaced intervals? Why might "cramming" not be as effective as spacing? (Spacing is often called *distributed practice* because acquisition is distributed over a larger time interval. Cramming is often called *massed practice*.)

Imagery

59. Can *imagery* be subjected to experimental analysis at the behavioral level? At the neural level? Justify your answers.

60. Does conditioned perceptual behavior meet the definition of an operant? That is, is it: (a) guided by stimuli, (b) acquired and maintained by its consequences, and (c) one of the terms in a three-term contingency?

61. What is the function of imagery in remembering? Why is imagery better able to serve that function when remembering concrete as opposed to abstract events?

62. What is there about environment-environment relations (i.e., polysensory integrations) that make it likely that perceptual responses are sensitive to relations among events? How might this characteristic facilitate the contribution of conditioned perceptions to remembering the relation or sequence of events?

63. Indicate a similarity between intraverbals and perceptual relations with regard to remembering.

64. Referring to the guidance of behavior by multiple discriminative stimuli, how might remembering be aided by sensing an event through multiple sensory channels? Could similar processes contribute to the beneficial effects of conditioned perceptual behavior on remembering? Explain, making reference to the account of "The war of the ghosts" on p. 339.

Organization

65. By what biobehavioral processes might o _____ events during acquisition benefit remembering? Indicate the role of prior learning in *organizational effects*. Do organizational effects differ qualitatively from other instances of the guidance of behavior by stimuli (Your answer should refer to behavioral chaining)?

Elaboration

66. Indicate the role of prior learning in e _____.

67. A number of *codified mnemonic procedures* are discussed in this section: the m _____ of l _____, p _____ - w _____ m _____, and k _____ m _____. Describe each set of mnemonics briefly and provide a behavioral interpretation of how each procedure affects remembering.

Detrimental Effects of Mnemonic Procedures

68. *Mnemonic behavior*—even the various codified procedures—does not always lead to the target response. Indicate some of the biobehavioral processes that may prevent the target response from occurring. Give an example of your own construction to illustrate a possible difficulty.

69. Suppose that you emit a response that is similar to the target response, but that is not identical to it. Indicate some of the biobehavioral processes that might cause this to facilitate emitting the target response? To interfere with or inhibit the target response?

Mnemonic Procedures: A Summary

70. In order for acquisition conditions to facilitate remembering, what must be the relation between the stimuli present during acquisition and the supplementary stimuli produced by the mnemonic behavior? Give an example to illustrate your answer.

71. Carefully read the example in which a child sees a giraffe while visiting a zoo. Interpret the differences in the child's "memory" for seeing the giraffe when asked the two questions described in the reading. Did the child have the "memory" or not?

THE ACQUISITION OF MNEMONIC BEHAVIOR

72. From a selectionist perspective, criticize the following statement: Some people have good memories while others do not.

73. Indicate what aspects of a history of reinforcement might lead to the acquisition of mnemonic behavior. Why might formal schooling aid its acquisition?

74. Memory research with children gives glimpses of the acquisition of mnemonic behavior. After reading this section, summarize the findings and give specific examples to illustrate the main points. If mnemonic behavior is the cumulative effect of a history of reinforcement for the individual learner, what are some difficulties faced by developmental research on "memory"?

75. The reading states that repeating items out loud as the list was read was "an important advance". What is the reasoning behind this statement?

76. Critique the following statement: Research on memory in children shows that, as the child grows older, memory gradually develops.

77. Describe evidence that indicates that "memory" may be learned. Can developmentally disabled children also learn to remember?

Metamemory: Awareness of Mnemonic Behavior

78. What is m _____?

79. In your own words, and with an example to illustrate each, what are four conditions that foster self-awareness according to Skinner? (See the **Table** on p. 346.)

80. What special difficulty does self-awareness present (i.e., the guidance of verbal behavior by covert stimuli) that is not encountered in the awareness of overt events?

81. Can awareness of covert (or p _____) events ever become as precise as awareness of overt (or _____) events? Explain, using the term *tact* in your answer.

82. Indicate why others should be interested in bringing our verbal behavior under the guidance of events within our own bodies (i.e., *private events*)? Why should others "care" whether we tact internal events accurately? Use the phrase *verbal community* in your answer.

83. Once the verbal community has reinforced tacting private events (self-awareness), can that behavior be maintained in the absence of a verbal community? Explain.

ANTEROGRADE AMNESIA AND MNEMONIC BEHAVIOR

84. Summarize some of the deficits produced by bilateral damage to the hippocampus or its connections to other brain areas. What behavioral functions seem to be spared? (See **Figure 12.4.**)

85. Since the left hemisphere plays a primary role in mediating verbal behavior, why must hippocampal damage be bilateral to seriously affect verbal behavior (Hint: What is the function of the corpus callosum?)

86. Why should reminding and mnemonic behavior continue after hippocampal damage? Why should the acquisition of new mnemonic behavior be affected?

THE INTERPRETATION OF EXCEPTIONAL MNEMONIC PERFORMANCES

87. In the case of *S* described by Luria, summarize the major characteristics of his mnemonic behavior.

88. What is wrong with explaining the memory feats of *S* by attributing his performance to having a good memory?

89. Does *S*'s performance appear to differ from the mnemonic behavior of others in the basic processes involved? What appeared to be important for his remarkable feats of memory?

90. Were there any disadvantages to having such a good "memory", and what appeared responsible for these? Use the terms *synesthesia* and perceptual behavior in your answer.

CONCLUSION

88. Does the continuity of human behavior indicate that behavior is the result of an orderly sequence of biobehavioral processes? Explain.

89. Are we aware of all that we are doing? Refer to the verbal bias in your answer.

90. Read this section for a general summary of how we remember a target response and become self-aware. Then put the process into your own words.

91. Indicate how the outcome of this process is consistent with the view that we are in control of our own behavior.

92. From a selectionist perspective, is behavior caused by events within the individual? If not, from where does the guidance of behavior originate?

93. Now that you have completed the book, what are the main strengths and the main limitations of a selectionist approach to complex human behavior? Are there other approaches that have greater strengths and fewer limitations? Is anything left out of a selectionist account?