

Chapter Eight

LANGUAGE AND THOUGHT

Review of Key Ideas

LANGUAGE: TURNING THOUGHTS INTO WORDS

1. Outline the key properties of language and describe its structure.

1-1. Language is characterized by four properties: it is symbolic, semantic, generative, and structured. Identify each of these properties in the following statements.

- (a) Applying rules to arrange words into phrases and sentences illustrates the _____ property of language.
- (b) Using words or geometric forms to represent objects, actions or events illustrates the _____ property of language.
- (c) Making different words out of the same letters, such as NOW and WON, illustrates the _____ property of language.
- (d) Giving the same meaning to different words, such as chat, katz, and cat, illustrates the _____ aspect of language.

1-2. Identify the following parts (units) of language.

- (a) With around 40 of these basic sounds you can say all of the words in the English language.

- (b) Phonemes are combined into these smallest units of meaning in a language, which may include root words as well as prefixes and suffixes. _____
- (c) The component of language concerned with understanding the meaning of words and word combinations is called _____.
- (d) These rules specify how words can be combined into phrases and sentences. _____

2. Trace the development of human language during childhood.

2-1. Answer the following questions regarding the development of language during the first year of life.

(a) What are a child's three major vocalizations during the first six months of life?

(b) What is the range in months for the babbling stage of language development?

(c) What gradually occurs as the babbling stage progresses?

2-2. What does the text mean when it states that the receptive vocabulary of toddlers is much larger than their productive vocabulary?

2-3. Identify the following phenomenon observed in children's early use of language.

(a) What phenomenon is illustrated when a child calls all four-legged creatures "doggie"? _____

(b) What phenomenon is illustrated when a child correctly communicates her desire to know where the family dog is simply by asking, "doggie"? _____

(c) What phenomenon is illustrated when a child complains to her mother, "doggie eat cookie"? _____

(d) What phenomenon is illustrated when a child says, "doggie runned away"? _____

(e) What phenomenon is illustrated when a child puns, "I love your I's"? _____

(f) Solving the following anagram best describes how children acquire language skills. FWSYLIT

Answers: 2-1. (a) crying, laughing, and cooing (b) 6 to 18 months (c) The babbling increasingly resembles spoken language. 2-2. They can understand more spoken words than they can reproduce themselves. 2-3. (a) overextensions (b) holophrases (c) telegraphic speech (d) overregularization (e) metalinguistic awareness (f) SWIFTLY

3. Summarize the effect of bilingualism on language and cognitive development and the factors that influence the learning of a second language.

- 3-1. What does research comparing monolingual and bilingual children show with respect to their language and development?
- 3-2. When middle-class bilingual subjects who are fluent in both languages are studied, they tend to score somewhat (lower/higher) than monolinguals on measures of various cognitive skills such as analytical reasoning.
- 3-3. On some types of tasks, such as raw language processing speed, (bilinguals/monolinguals) appear to have a slight disadvantage.

~~Answers: 3-1. They are largely similar in their rate of development in both areas. 3-2. higher 3-3. bilinguals~~

4. Evaluate the controversy regarding language acquisition in animals.

- 4-1. Indicate whether each of the following is true or false.
- _____ (a) Researchers have been able to teach chimpanzees to use symbols to communicate.
- _____ (b) Kanzi the chimp appears to comprehend both words and their relations to one another as specified by the structure.
- _____ (c) It has been found that the neurological substrates underlying human language may also be present in chimpanzees.
- _____ (d) Language acquisition in chimpanzees appears to be very similar to language acquisition in children.

~~Answers: 4-1. (a) true (b) true (c) true (d) false~~

5. Discuss the possible evolutionary basis of language.

- 5-1. What evolutionary advantage might language have given human populations when compared to the Neanderthals (whom many believe lacked the language capabilities found in human beings)?

~~Answers: 5-1. The Neanderthals became extinct (and we're still here)~~

6. Compare the behaviorist, nativist, and interactionist perspectives on language acquisition.

- 6-1. Identify the following perspectives on the acquisition of language.
- (a) This perspective places great emphasis on the role of reinforcement and imitation. _____

- (b) This perspective assumes that children make use of a language acquisition device (LAD) to acquire transformational rules which enable them to easily translate between surface structure and deep structure. _____
- (c) This perspective proposes that the neural circuits supporting language emerge gradually in response to language learning experiences. _____

6-2. Which perspective places greatest emphasis on:

- (a) nurture _____
- (b) nature _____
- (c) nature interacting with nurture _____

Answers: 6-1. (a) behaviorist (b) nativist (c) interactionist 6-2. (a) behaviorist (b) nativist (c) interactionist

7. Discuss culture and language and the status of the linguistic relativity hypothesis.

7-1. What is the major idea behind Benjamin Whorf's linguistic relativity hypothesis?

7-2. Recent research tends to (refute/support) Whorf's hypothesis and although the evidence (is/is not) overwhelming, it does appear that language exerts some influence over our thoughts. In other words, one's language may make it either _____ or more _____ to think along certain lines.

Answers: 7-1. Language determines thought. 7-2. Support, not easily difficult

PROBLEM SOLVING: IN SEARCH OF SOLUTIONS

8. List the three types of problems proposed by Greeno.

8-1. Greeno has proposed three types of problems (arrangement, inducing structure, and transformation). Identify each of these types from descriptions given below.

- (a) This type of problem requires the problem solver to discover the relations among the parts of the problem.
- (b) This type of problem requires the problem solver to place the parts in a way that satisfies some specific criterion.
- (c) This type of problem requires the problem solver to carry out a sequence of changes or rearrangements in order to reach a specific goal.

8-2. Do not answer the following questions/problems, rather specify which of Greeno's three types of problems is represented by each of them.

(a) Which two three-letter English words can be made from the letters TBU?

(b) Fill in the missing word in, "grass is to green as snow is to _____."

(c) You need to take your child to a pediatrician, your dog to the veterinarian, and your mother to the hairdresser, all within a limited time period. You think to yourself, "I'll take Bobbie and the dog and pick up Mom. Mom can stay with Bobbie at the doctor's office, while I take the dog to the vet. Then I'll..."

Answers: 8-1. (a) arrangement (b) inducing structure (c) transformation 8-2. (a) inducing structure (b) arrangement (c) transformation.

9. Identify and describe four common barriers to effective problem-solving.

9-1. Which of the barriers to effective problem solving (*irrelevant information, mental set, unnecessary constraints, functional fixedness*) are you overcoming when you:

(a) make a financial decision without first consulting your horoscope?

(b) use a page of newspaper as a wedge to keep a door open?

9-2. Which of the barriers to effective problem solving, mental set or unnecessary constraints, are you overcoming when you:

(a) color outside the lines to create a more interesting picture?

(b) teach an old dog a new trick?

Answers: 9-1. (a) irrelevant information (b) functional fixedness 9-2. (a) unnecessary constraints (b) mental set

10. Review a variety of general problem-solving strategies and heuristics.

10-1. The text describes a variety of different problem-solving techniques, or _____. Which of these heuristics (*forming subgoals, hill climbing, working backward, searching for analogies, or changing the representation of the problem*) would be most applicable in solving the following problems?

(a) While opening your car door you drop the keys. The keys hit your foot and bounce underneath the car, too far to reach. It has stopped raining, so you close your umbrella and ponder how to get your keys.

- (b) You have accepted the responsibility of chairing the homecoming celebration at your school.
- (c) You have removed and disassembled the filter on a sink and put the parts in a cleaning solution. When reassembling it, you cannot remember the sequence in which to replace the parts. You then go to another sink with a similar filter.
- (d) You want to call a friend but you don't have her cell phone number so you think of three people who might have her number and first call the person most likely to have it.
- (e) You have agreed to become the campaign chairwoman for a friend who wants to run for student body president. Obviously, your goal is to make your friend look like a good choice to students, but which heuristic do politicians often employ here?

Answers: 10-1. Heuristics (a) Search for analogies- the umbrella can be used as a rake. (b) Form subgoals (c) Work backwards- see how the parts come out. (d) Hill climbing (e) Change the representation of the problem- make the options look like a bad choice.

11. Discuss cultural variations in cognitive style as they relate to problem-solving.

- 11-1. Nisbett and others have proposed that East Asian cultures focus on context and relationships among elements in a field, which they call a _____ cognitive style, whereas people from Western cultures focus on objects and their properties, rather than context, which they call an _____ cognitive style. They conclude that these cultural disparities in cognitive style are (substantial/minimal).

Answers: 11-1. holistic, analytical, substantial

DECISION MAKING: CHOICES AND CHANCES

12. Articulate Simon's theory of bounded rationality and Schwartz's notion that choice overload undermines well-being.

- 12-1. According to Simon's theory of bounded rationality, people tend to use (complex/simple) strategies in decision making that focus on (a few/many) of the available options. This often results in (rational/irrational) decisions.
- 12-2. Why does Schwartz feel that choice overload undermines well-being?

Answers: 12-1. simple, a few, rational 12-2. It increases the potential for omissions and post-decision regret.

13. Distinguish between additive and elimination by aspects approaches to selecting an alternative.

13-1. Indicate which of these two approaches to decision making would be best when:

- (a) The task is complex and there are numerous alternatives to choose from.
- (b) You want to allow attractive attributes to compensate for unattractive attributes.

14. Discuss research findings on factors that influence decisions about preferences, including the Featured Study on deliberation-without-awareness.

14-1. When forced to choose between various options, people fluctuate (less/more) than assumed by most models of decision making. One reason for these fluctuations appears to be incidental _____ fluctuations.

14-2. It has also been found that comparative and separate approaches to the evaluation of options yield (similar/different) results. While people often make decisions based on comparative evaluations, the chosen event or product is actually experienced in _____.

14-3. Answer the following questions regarding whether conscious or unconscious thought was superior when making decisions.

- (a) In Study A, when the car choice was relatively simple.
- (b) In Study A, when the car choice was more complex.
- (c) In Study B, which rated post-choice satisfaction when decisions were complex.
- (d) In Study B, which rated post-choice satisfaction when decisions were simple.
- (e) Can we generalize to all kinds of real-world problems with respect to these studies?

15. Explain the nature of risky decision-making and factors that influence it.

15-1. What differentiates risky decision-making from other kinds of decision-making?

15-2. What is the most you can know when making a risky decision?

15-3. What two things must be known in order to calculate the expected value of making a risky decision when gambling with money?

15-4. How does the concept of subjective utility explain why some persons still engage in risky decision-making when the expected value predicts a loss?

Answers: 15-1. The outcome is uncertain. 15-2. The probability of a particular outcome. 15-3. The average amount of money you could expect to win or lose with each play and the probability of a win or loss. 15-4. The personal worth of the outcome may outweigh the probability of losing.

16. Understand the availability and representativeness heuristics.

16-1. Estimating the probability of an event on the basis of how often one recalls it has been experienced in the past is what Tversky and Kahneman call a(n) _____ heuristic.

16-2. When most people are asked if there are more words that begin with N or words that have N as the third letter, they apply the availability heuristic and guess incorrectly. Explain why they do this.

16-3. Estimating the probability of an event on the basis of how similar it is to a particular model or stereotype of that event is what Tversky and Kahneman call a _____ heuristic.

16-4. "Steve is very shy. He has a high need for structure and likes detail. Is Steve more likely to be a salesperson or a librarian?" When persons are given this problem, they usually guess that he is a librarian, even though there are many more salespersons than there are librarians. Explain why they do this.

Answers: 16-1. availability 16-2. Because they can immediately recall many more words that begin with N than words having N as the third letter. 16-3. representativeness 16-4. Because they employ the representativeness heuristic and Steve fits the stereotype of a librarian.

17. Describe base rate neglect and the conjunction fallacy and their causes.

17-1. Identify which example of flawed reasoning (base rate neglect, or the conjunction fallacy) is being described below.

(a) Estimating that the odds of two uncertain events happening together are greater than the odds of either event happening alone.

(b) Guessing that "Steve" is a librarian and not a salesperson.

- (c) Which one of these two errors in judgment is a misapplication of the representativeness heuristic?

18. Assess evolutionary theorists' evaluation of cognitive research on flaws in human decision strategies.

18-1. According to evolutionary theorists, is the human mind better wired to deal with:

(a) base rates and probabilities or raw frequencies?

(b) whole actions or parts of actions?

18-2. What happens to irrational decision-making when problems are reformulated in ways that resemble problems ancient humans had to face?

19. Describe the nature of fast and frugal heuristics.

19-1. In going about our daily lives we are generally forced to make quick decisions (with/without) the relevant information. According to Gigerenzer, in these situations we usually employ _____ and _____ heuristics based on our own general knowledge. Research shows that these fast and frugal heuristics (are/are not) very effective.

19-2. Traditional decision-making theorists maintain that fast and frugal heuristics and reasoned, rule-governed strategies are (complimentary/contradictory) and that _____ need to be studied to fully understand decision-making.

REFLECTING ON THE CHAPTER'S THEMES

20. Identify the four unifying themes highlighted in this chapter.

20-1. Indicate which one of the four unifying themes (*the interaction of heredity and the environment, behavior is shaped by cultural heritage, the empirical nature of psychology, and the subjectivity of experience*) are best represented by the following statements.

(a) Psychologists developed objective measures for higher mental processes thus bringing about the cognitive revolution.

(b) The manner in which questions are framed can influence cognitive appraisal of the questions.

- (c) Neither pure nativist theories nor pure nurture theories appear to adequately explain the development of language.

- (d) The ecological demands of one's environment appear to somewhat affect one's cognitive style.

Answers: 20-1. (a) the empirical nature of psychology (b) the subject of psychology (c) the interaction of heredity and the environment (d) Behavior is shaped by cultural heritage.

UNDERSTANDING PITFALLS IN DECISION MAKING

21. Explain what is meant by the gambler's fallacy and the tendency to overestimate the improbable.

- 21-1. A man walks into a gambling casino with a notepad and begins noting which numbers are coming up on a roulette wheel. After several hours, he notes that number 26 has never come up during this period. He then begins placing bets on 26. This man is falling for the _____.

- 21-2. Answer the following questions regarding the tendency to overestimate the improbable.

- (a) Why do a majority of people estimate that tornados kill more people than asthma?
- (b) Which heuristic is thought to account for the tendency to overestimate the improbable?

Answers: 21-1. gambler's fallacy, the propensity to overestimate the improbable 21-2. (a) Deadly tornados get far more media coverage. (b) availability.

22. Describe the propensity to seek confirming information and the overconfidence effect.

- 22-1. The confirmation bias arises when people put too (much/little) faith in their estimates, belief, and decisions.
- 22-2. What omission leads to the confirmation bias when making decisions?

Answers: 22-1. much 22-2. Failure to seek out disconfirming information.

23. Analyze the effects of framing and loss aversion on decisions.

- 23-1. Asking persons if they would prefer their glass of wine to be half-full or half-empty illustrates the general idea behind the _____ of questions.

- 23-2. Answer the following true-false questions regarding loss aversion.

- (a) People tend to underestimate how much regret they will experience as a result of poor decisions.

- (b) In general, when making decisions, the potential of losing looms larger than the potential of winning a similar amount.

24. Recognize key language manipulation strategies that people use to shape others' thoughts.

24-1. State which language manipulation strategy is being used in each of the following situations.

- (a) A politician says that his opponent "has an IQ somewhat below room temperature."
- (b) Pet owners have their pets "put to sleep" when they become terminally ill.
- (c) Only someone unbelievably stupid would be against more gun control legislation.
- (d) Insurance companies sell "life insurance" policies rather than "death benefits" policies.

24-2. An organization using semantic slanting is best advised to slant its objectives so as to be (for/against) something when attempting to accomplish its goal.

Review of Key Terms

Algorithm	Hill-climbing heuristic	Phonemes
Availability heuristic	Insight	Problem-solving
Bilingualism	Language	Problem space
Cognition	Language acquisition device (LAD)	Representativeness heuristic
Confirmation bias	Linguistic relativity	Risky decision making
Conjunction fallacy	Mean length of utterance (MLU)	Semantics
Decision making	Mental set	Syntax
Fast mapping	Metalinguistic awareness	Telegraphic speech
Framing	Morphemes	Theory of bounded rationality
Functional fixedness	Overextension	Trial and error
Gambler's fallacy	Overregularization	Underextension
Heuristic		

1. The component of language concerned with understanding the meaning of words and word combinations.
2. A collection of symbols, and rules for combining those symbols, that can be used to create an infinite variety of messages.
3. The smallest units of sound in a spoken language.

4. The smallest units of meaning in a language.
5. The rules that specify how words can be combined into phrases and sentences.
6. Using a word incorrectly to describe a wider set of objects or actions than it is meant to.
7. Using a word to describe a narrower set of objects than it is meant to.
8. Single-word utterances that represent the meaning of several words.
9. The ability to reflect on the use of language.
10. Consists of the acquisition of two languages that employ different speech sounds, vocabulary, and grammatical rules.
11. Entails selecting the alternative at each choice point that appears to lead most directly to one's goal.
12. Basing the estimated probability of an event on the ease with which relevant instances come to mind.
13. Basing the estimated probability of an event on how similar it is to the typical prototype of that event.
14. The mental processes involved in acquiring knowledge.
15. The tendency to perceive an item only in terms of its most common use.
16. The sudden discovery of a correct solution to a problem following incorrect attempts.
17. A strategy for solving problems.
18. The process by which children map a word on an underlying concept after only one exposure to the word.
19. The average of youngsters' spoken statements (measured in morphemes).
20. Generalizing grammatical rules to irregular cases where they do not apply.
21. Making decisions under conditions of uncertainty.
22. A hypothetical innate mechanism or process that facilitates the learning of language.
23. Persisting in using problem-solving strategies that have worked in the past.
24. The theory that one's language determines one's thoughts.
25. The active efforts to discover what must be done to achieve a goal that is not readily attainable.
26. Trying possible solutions sequentially and discarding those that are in error until one works.
27. Evaluating alternatives and making choices among them.
28. How issues are posed or how choices are structured.
29. A methodical, step-by-step procedure for trying all possible alternatives in searching for a solution to a problem.
30. The tendency to seek information that supports one's decisions and beliefs while ignoring disconfirming evidence.
31. Occurs when people estimate that the odds of two uncertain events happening are greater than the odds of either event happening alone.
32. The belief that the odds of a chance event increase if the event hasn't occurred recently.
33. Refers to the set of possible pathways to a solution considered by the problem solver.