Dr. Ray's Psychology 101

Review Session II

by TA Xiangmin Xu

7:00 p.m. March 01, 2000

Class Exam 2

Time: March 03 9:05 a.m.
Place: Room 103, Wilson Hall

*** Please bring your own ID and pencils

About the exam

- The class exam contains 50 multiple-choice questions covering the lectures, the assigned reading material, the class film and handouts.

- One multiple-choice question has five options.

- Difficulty level will relatively increase.

Class Webpage Sources:

- Lecture outlines have been on the web

- The Powerpoint slides for this review session in the PDF format are available on the web. You don't have to copy the slides word for word now.

http://www.psy.vanderbilt.edu/psychology101/

Introduction to Learning (Chapter 5 & Related Lectures)

Topics: classical conditioning, operant conditioning,learning theory

- Learning refers to an enduring change in the way an organism responds based on its experience
- Learning theories assume that experience shapes behavior.
- Principle of association is fundamental to learning.

Some concepts

•stimulus, response

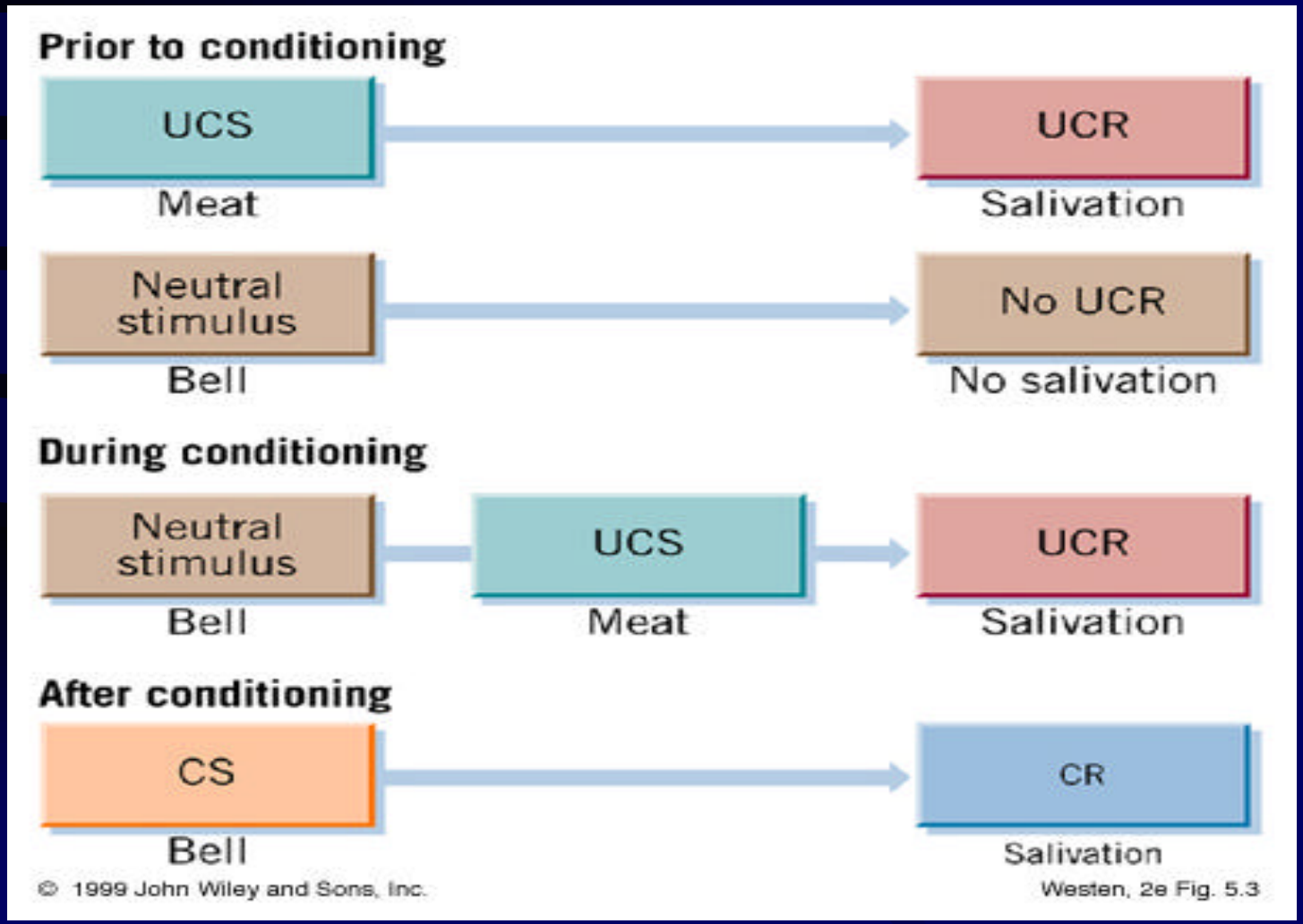
•Reflex is a behavior that is elicited automatically by an environmental stimulus, e.g. knee-jerk reflex.
• Related concepts: taxis, instincts, biofeedback (need to know some examples)

Two major types of conditioning:

•Classical conditioning
•operant conditioning

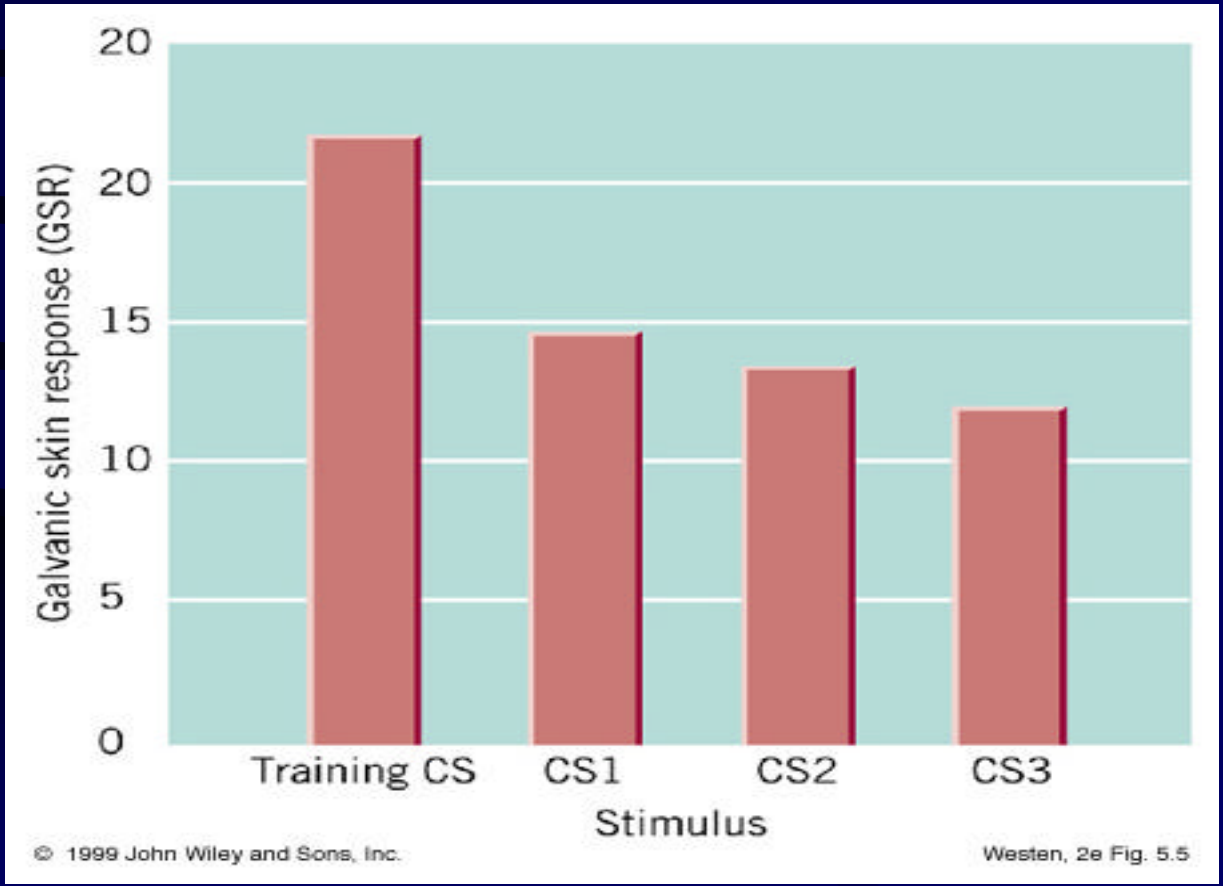
Classical conditioning (Pavolvian / respondent conditioning)

- US, UCR, CS, CR, neutral stimulus



Stimulus generalization and discrimination

GSR: Galvanic skin response



Types of Conditioned Responses (CR)

Though crucial to adaptation, CR could be maladaptive.

- conditioned taste aversion
- conditioned emotional responses
- conditioned immune responses

Extinction When will it happen?

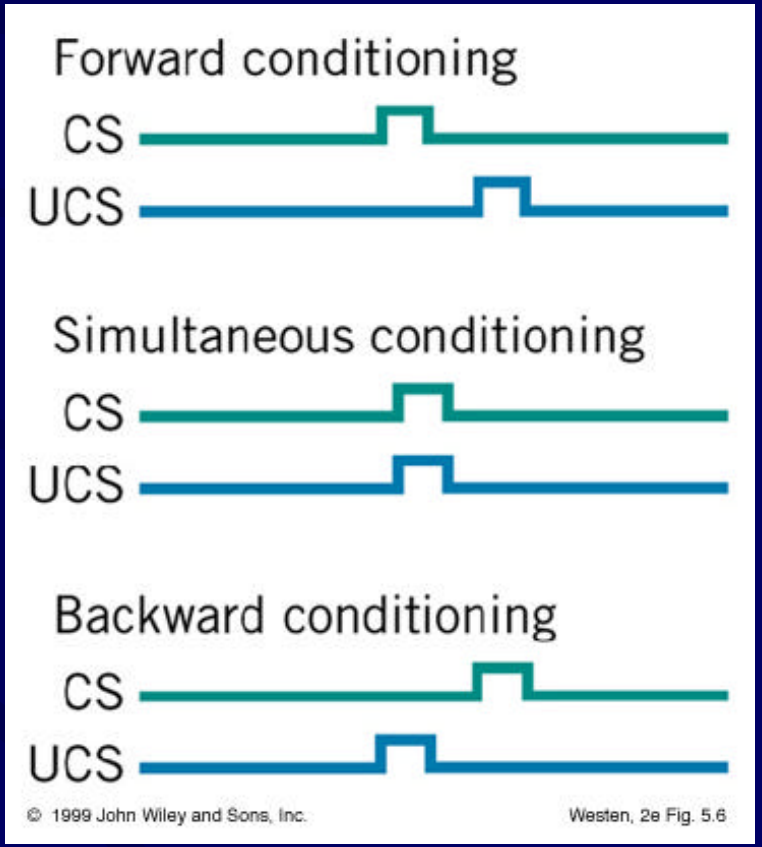
Spontaneous recovery

Factors affecting classical conditioning

•interstimulus interval

•learning history / blocking

•prepared learning



Operant Conditioning

- Law of Effect: Behavior is controlled by its consequences
  - Thorndike experiment: Hungry cat learned to pull a string in order to leave a box and eat food from a bowl placed just outside the box
- Operant conditioning and instrumental conditioning: Responses operate on the environment and are instrumental in receiving reward

Operant Conditioning
(instrumental or Shinnerian conditioning)

A major distinction between operant and classical conditioning: For classical conditioning, a environmental stimulus initiates a response, while for operant conditioning, a behavior produce an environmental response.

- Operant
- Two consequences: reinforcement, punishment

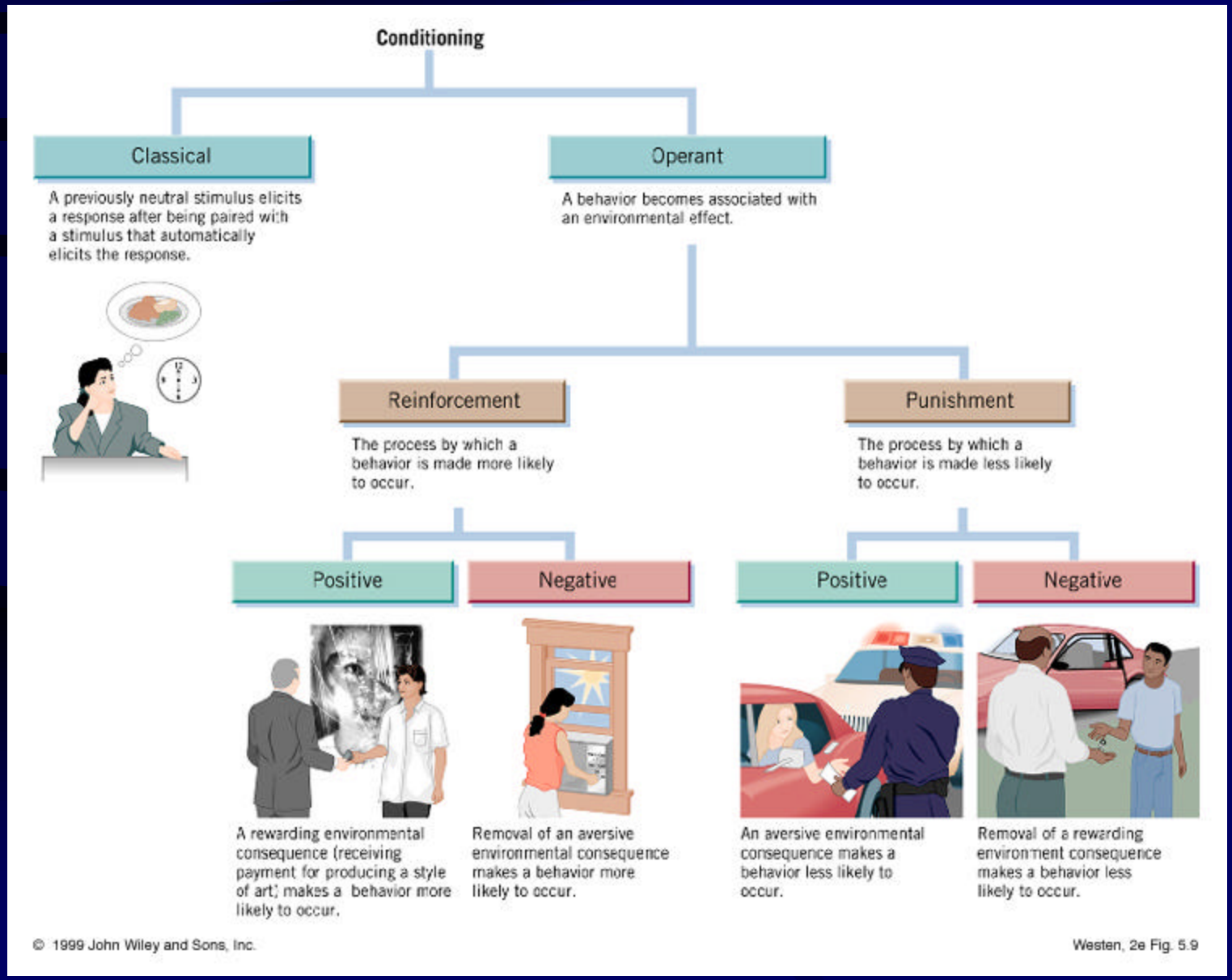
Positive Reinforcement

- Reinforcer: An environmental stimulus that occurs after the response and increases the likelihood that the response will occur in the future
  - Positive reinforcement: Process by which presentation of a stimulus after a response makes the response more likely to occur in the future
  - Negative reinforcement: Termination of an aversive event makes a behavior more likely to occur in the future

Punishment

- Punishment decreases the likelihood that a response will occur
  - Punishing situations:
    - Presentation of an aversive stimulus (Positive)
      - Parent spanks a child for taking candy...
      - Owner swats a dog who has chewed her slippers...
    - Removal of a reward (Negative)
      - Teenager who stays out past curfew is not allowed to drive the family car for 2 weeks...
      - Husband who forgets anniversary sleeps on couch for a week...

Positive/ Negative Reinforcement / Punishment



Operant conditioning of complex behavior

Schedules of Reinforcement

- Continuous reinforcement
- Partial/intermittent schedules
  - fixed ratio, variable ratio
  - fixed interval, variable interval

Discriminative Stimulus (response contingency)

Context

Characteristics of learners

Cognitive-social learning theory

It incorporates concepts of conditioning with focuses on cognition and social learning.

- Latent learning

- Expectancies

Julian Rotter: Locus of control (internal and external)

- Learned helplessness consists of the expectancy that one cannot escape aversive events and the motivational and learning deficits that result from this belief.

Expectancies and Conditioning

- Cognitive-social theory argues that we form expectancies about the consequences of our behaviors
  - These expectancies determine what is rewarding
- Locus of control: Refers to general expectancy as to whether fate does or not determine outcomes in life
  - Internal locus: Believe that their actions determine their fate
  - External locus: Believe that their lives are governed by forces outside their control

Social learning

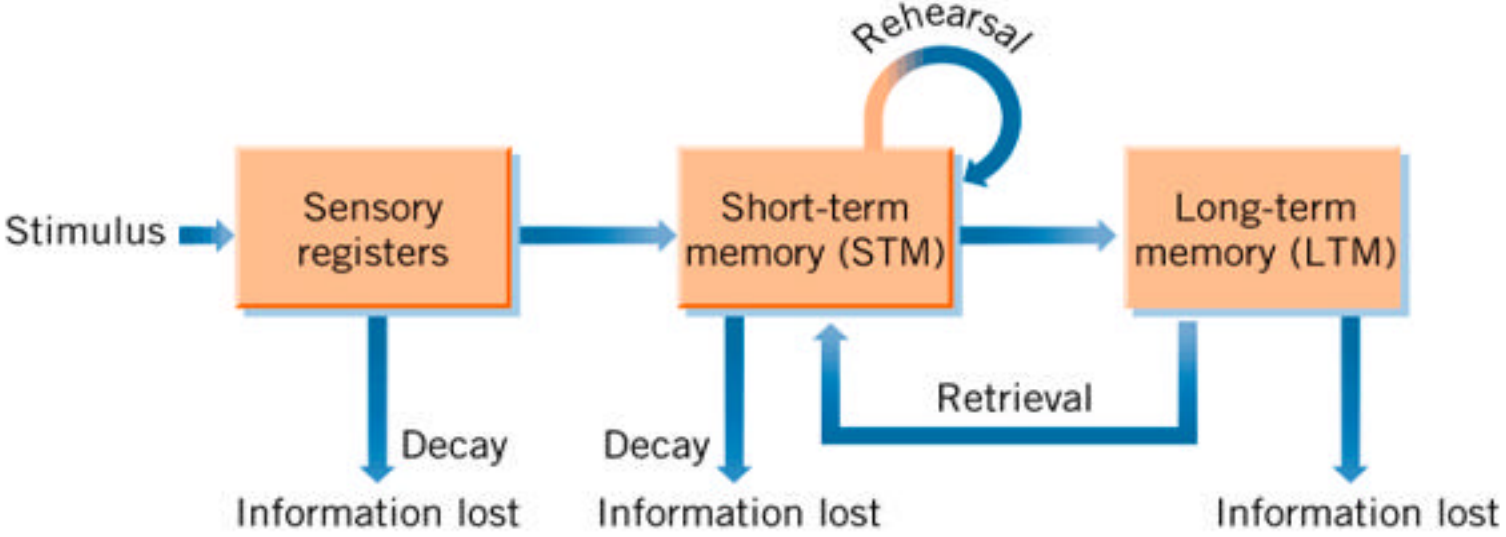
- observational learning
- modeling
- vicarious conditioning
- Tutelage

Chapter 6 & Related Lectures
Topic: Memory and information Processing

Standard Memory Model

- Assumes a metaphor of "*the mind as a computer*"
- Memory consists of 3 stores:
  - Sensory registers
    - Iconic (visual)
    - Echoic (auditory)
  - Short-term memory (STM)
  - Long-term memory (LTM)

The Information Processing Model of Memory



Characteristics & Functions

- Sensory memory:
  - decay very quickly, less than 500 ms
  - Not perceptually processed
- Short-term memory
- Long-term memory

Characteristics of STM

- Limited duration: After 20-30 seconds, information fades
- Limited capacity storage
  - STM capacity is about 7 items of information
    - Capacity is constant across cultures
- Involves rehearsal
  - Maintenance: information is repeated
  - Elaborative: information is related to other knowledge

LTM

- Representations of facts, images, actions, and skills that may persist over a lifetime
- Involves retrieval of information
- Is theoretically limitless
- The serial position curve supports the existence of STM versus LTM
  - Primacy effect reflects LTM
  - Recency effect reflects STM

Varieties of LTM

- Declarative memory
  - Semantic: "generic" knowledge of facts
  - Episodic: memories of specific events
    - Autobiographical
- Procedural memory: for skills
- Explicit memory: Conscious retrieval of information
  - Recall versus recognition
- Implicit memory: Skills, conditioned learning, and associative memory

Everyday memory / Emotional memory / prospective and retrospective memory

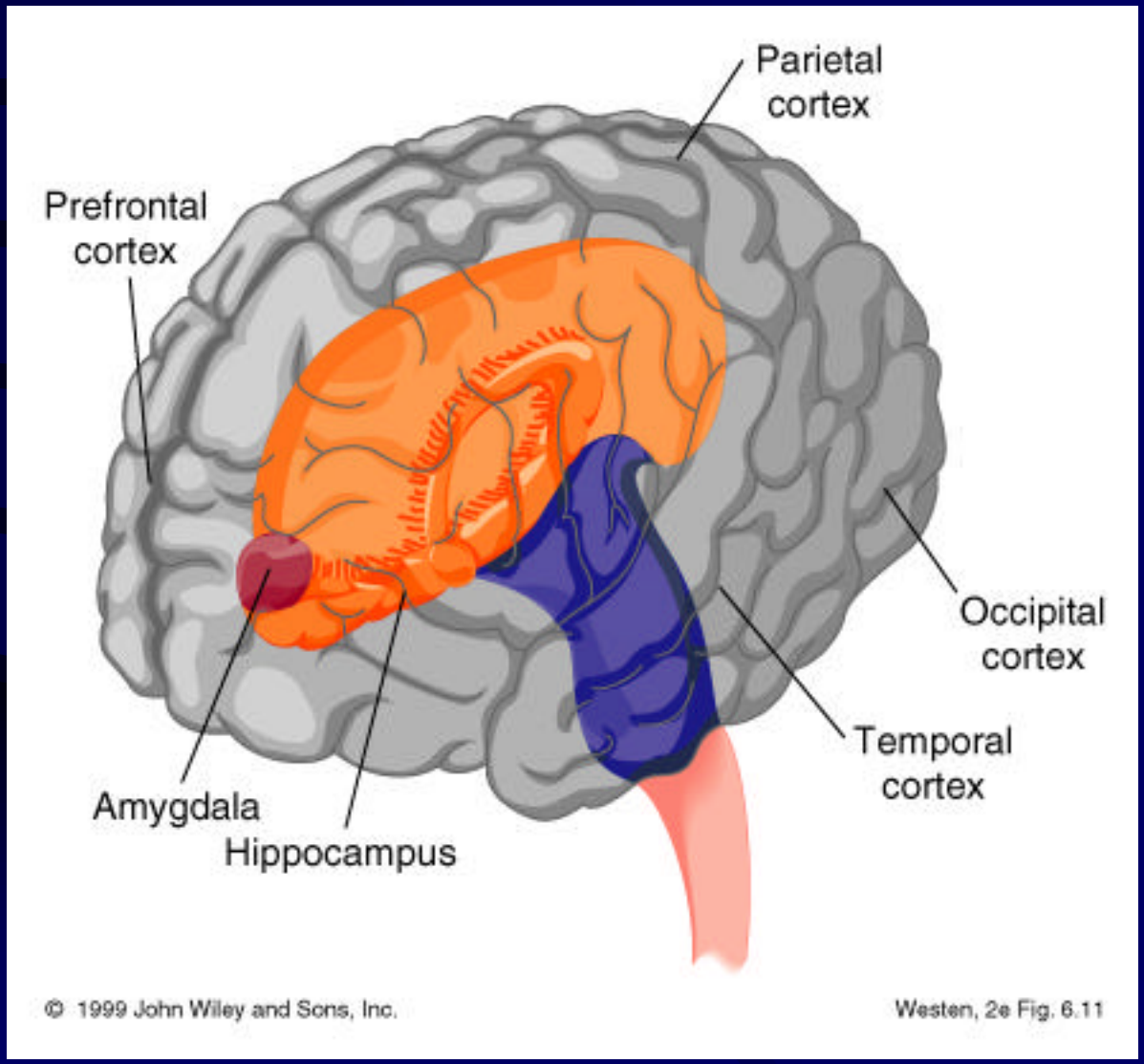
Encoding and organization of long-term memory

- encoding specificity
- context and retrieval
- spacing vs massed effects

Schema

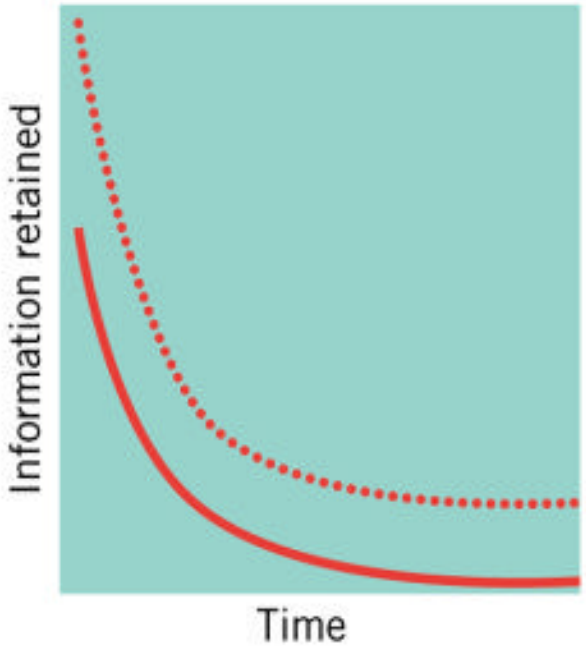
Schema / encoding and retrieval

- The brain areas related to memory



Forgetting

- Forgetting refers to the inability to recall previously learned information
- Ebbinghaus documented the rate of forgetting of information
  - Initial rate of forgetting is high and then trails off...



Why do people forget?

Chapter 8 & Related Lectures

Topics: Intelligence, tests, and testing

Intelligence(s)

- Multiple definitions of intelligence:
  - Expressed in different domains
    - The absent-minded professor
  - Intelligence is functional
    - Directed at solving problems
  - Intelligence is defined and shaped by culture
  - "What intelligence tests measure…"

Intelligence Testing

- Psychometric approach: devise tests to measure a person's cognitive level relative to others in a population
  - First popularized by Sir Francis Galton
    - Mass testing at an exposition
    - Galton devised correlation procedure to examine relation between simple measures of intelligence
      - Did not correlate with social class
  - Binet and Simon devised a test to measure intellectual development in children
    - Devised "mental age" concept": MA = average age at which children achieve an actual score

Standard-Binet Scale

Intelligence Quotient

- To allow for comparison of test scores among persons, L. Terman devised the concept of intelligence quotient (IQ):

$$IQ = (MA/CA) \times 100$$

MA = mental age

CA = chronological age

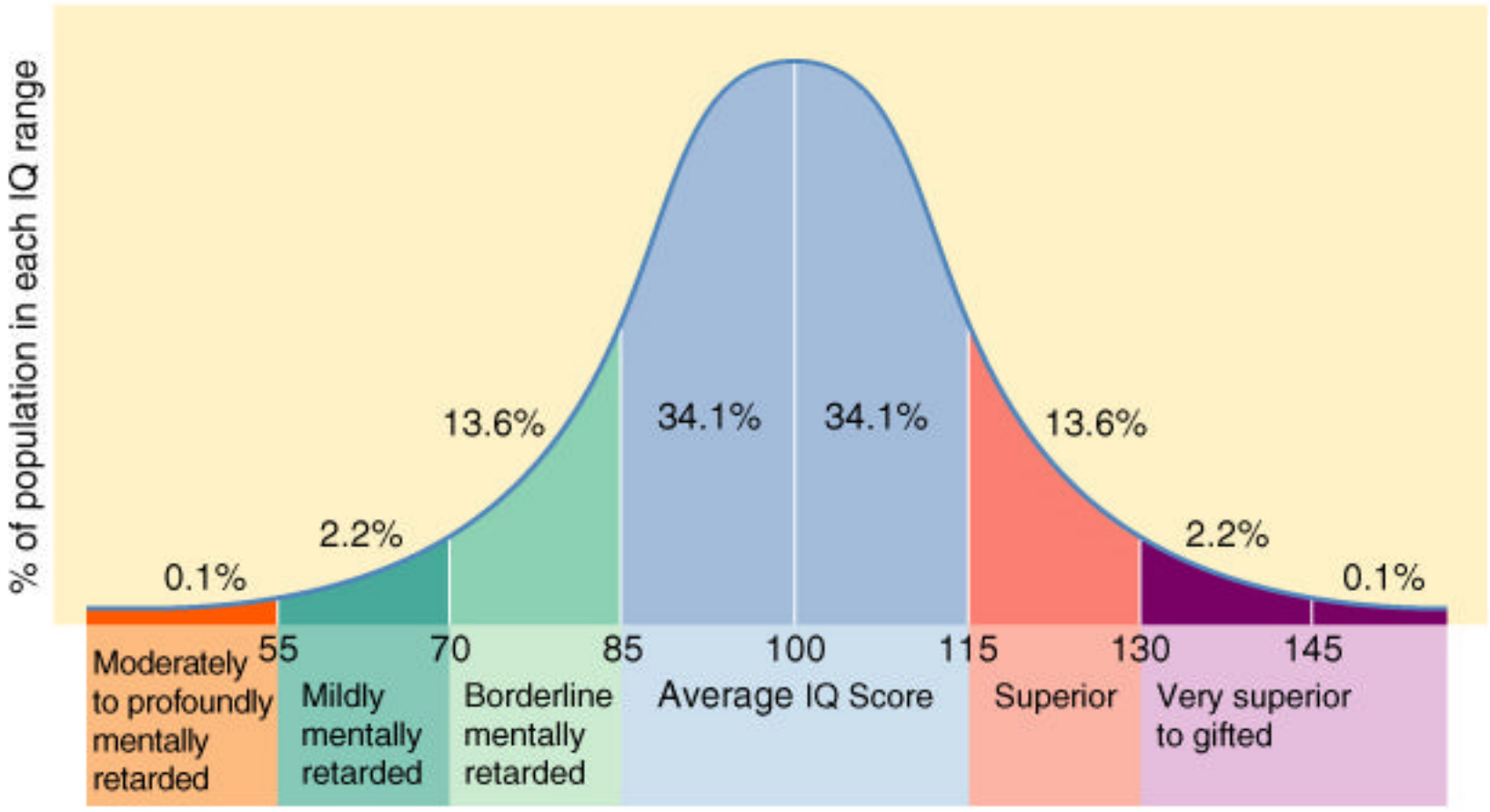
The Wechsler Intelligence Scales

David Wechsler

Wechsler Adult Inelligence Scale (WAIS III)
Wechsler Intelligence Scale for Children (WISC III)

As measured by WAIS III, IQ is a composite score derived from different subtests.

IQ as an individual's position relative to peers of the same age on a frequency distribution



(Figure adapted from Anastasi & Urbina, 1997)

Westen, 2e Fig. 8.2

Validity Issues for IQ Tests

- IQ test scores predict ability to succeed in school (valid use)
- IQ tests are often criticized because of:
  - Minimal theoretical basis (no underlying construct was used to devise tests)
  - Cultural bias
    - Scores depend on language, cultural experiences
      - Immigrants from Europe were deemed mental defectives because they had poor test scores
      - Tests were administered in English to non-English-speaking immigrants…..

Tests as appropriate samples of behavior

Requirements:

- Standardization
- Reliability
- validity

- Ability = function (Aptitude *[Training + Expectancies])

- Performance = f (Ability * Motivation) in the abstract

- How about performance in the real world?

Classes of Tests:

- Convergent: aptitude-achievement
- Divergent: projective ideas, creativity

Determinants of intelligence and/or intelligence test scores

- Genetic factors
- Prenatal factors
- Early experience factors: stimulation, nutrition
- Socio-economic level
- Race, sex and ethnic factors

Approaches to understanding the nature of intelligence

- The psychometric approach
- The information-processing approach
- A theory of multiple intelligence

- Their evaluations: advantages and limitations

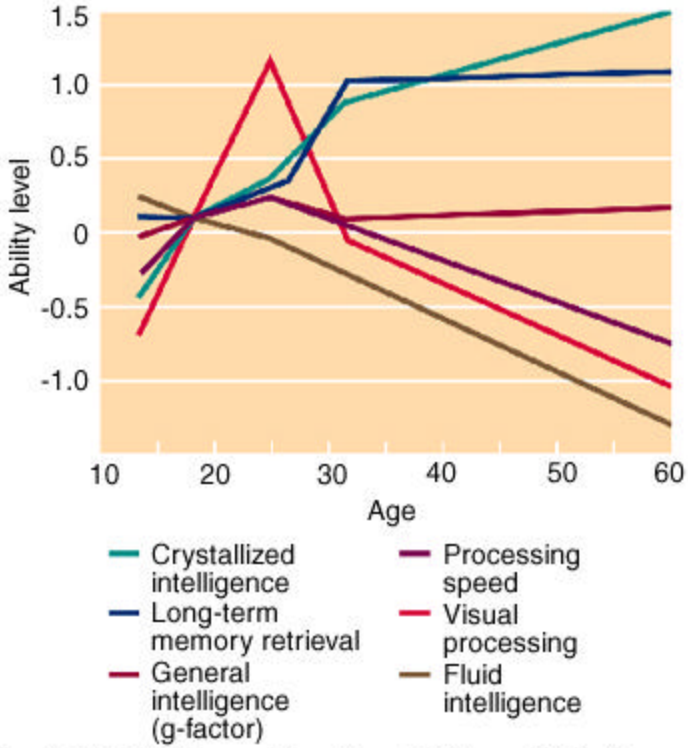
Psychometric Approach

Factor Analytic Approach to Intelligence testing

- Statistical approach in which test items are examined using factor analysis
  - Looks for items that correlate together (are a common factor)
- How many factors?
  - Thurstone: one common factor "g"
  - Spearman: two factors:
    - "g" for general intelligence
    - "s" for specific intelligence

Fluid versus Crystallized Intelligence

- Fluid: Refers to mental processes rather than specific information (declines with age)
- Crystallized: a persons knowledge base (increases with age)

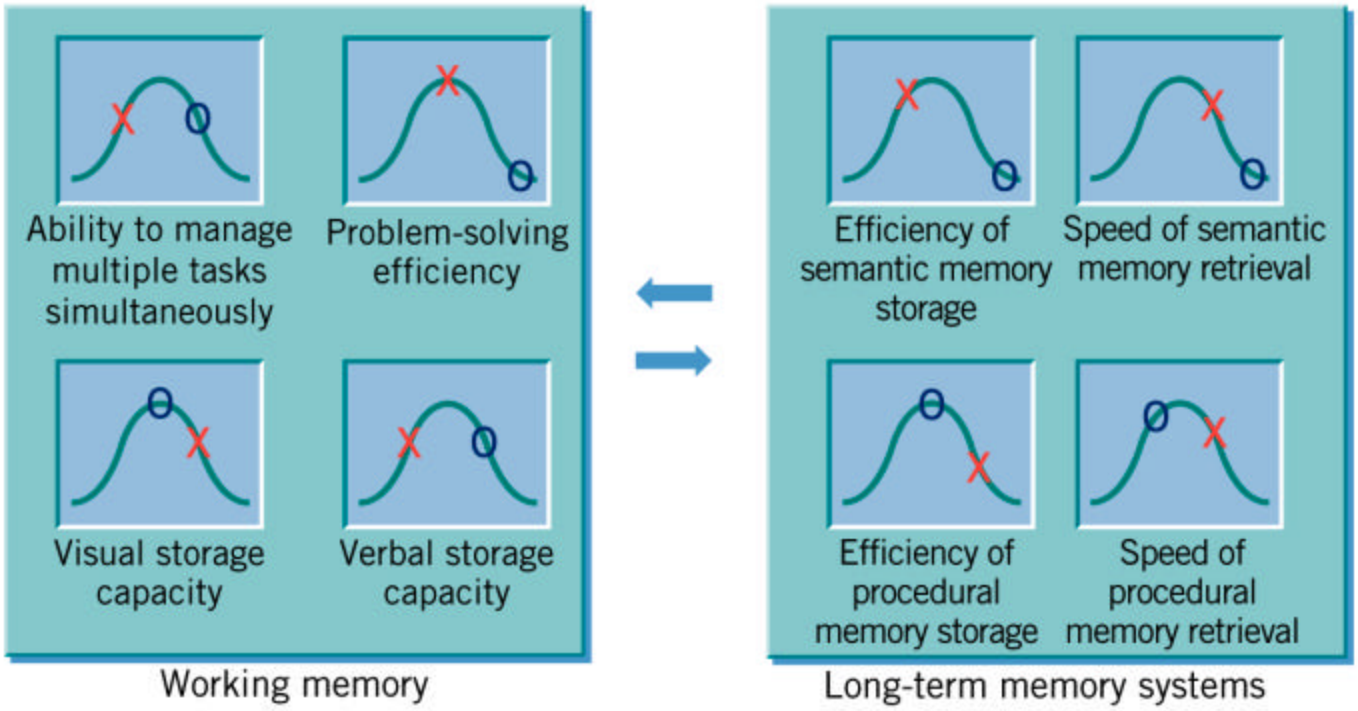


(Figure adapted from J. Horn & J. Knoll (1997) Human Cognitive Abilities: Gf-Gc theory. In D.P. Flanagan, J.L. Gershaft, & P.L. Harrison (Eds). Contemporary Intellectual Assessment, New York: Guilford, p. 72)

Information-Processing Approach

- Examines the processes that underlie intelligent behavior
  - Speed of processing: how rapidly a person can perform a mental task
    - Is a strong correlate of IQ scores
  - Knowledge base: persons with a strong knowledge base in an area are better able to perform a mental task
  - Ability to apply mental processes: can a person acquire and use new mental strategies?

The Information-Processing Approach to Intelligence Assessment



Theory of Multiple Intelligences

- Howard Gardner: notes that mental abilities appear to be independent:
  - Brain damage alters one mental ability but not others
  - Savants have differing levels of intelligence
  - There are differing courses of development of abilities
    - Mozart could write music before he could read...

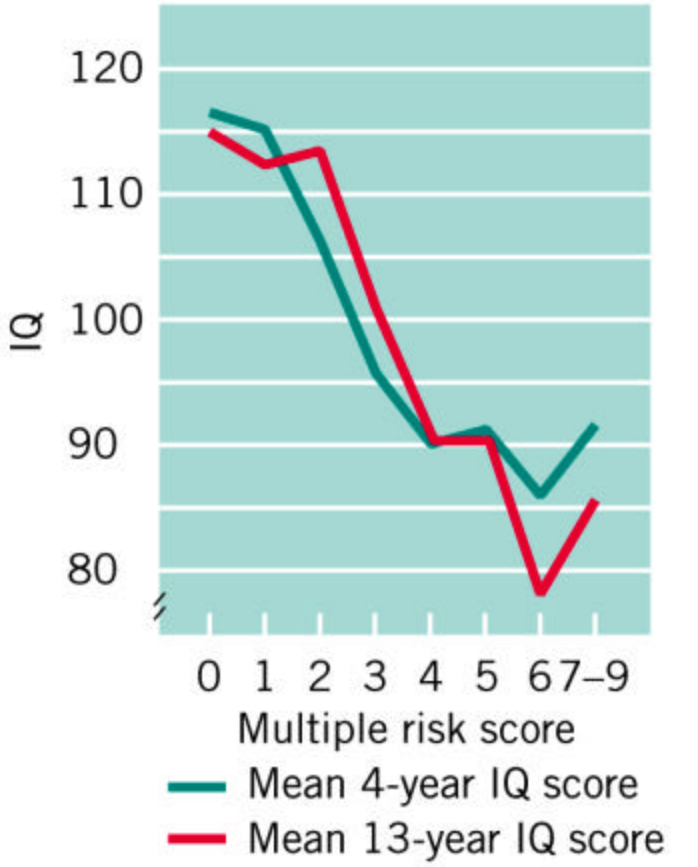
Gardner's View of Intelligences

- Gardner argues for at least 7 different intelligences
  - Musical
  - Bodily/kinesthetic
  - Spatial
  - Verbal
  - Logical/mathematical
  - Intra-personal
  - Social

Heredity and Intelligence

The Nature-Nurture Controversy

- What are the factors that influence IQ?
  - Environmental: factors such as parental education, mental status, nutrition
    - Risk factors are associated with reduced IQ scores
  - Genetic: notion that intelligence can be inherited



(Figure adapted from Sameroff et al., 1993, p. 89)

The extremes of intelligence

- Mental retardation / definition and causes
- Giftedness
- Creativity and intelligence

Mental Retardation

- Sub-average intellectual and adaptive functioning is termed mental retardation (IQ score less than 70)
  - Causes include:
    - Genetic disorder: Down syndrome (extra 21st chromosome)
    - Environmental issues
      - Damage incurred during birth process
      - Head injury
      - In utero exposure to alcohol or cocaine

Chapter 11 & Related Lectures

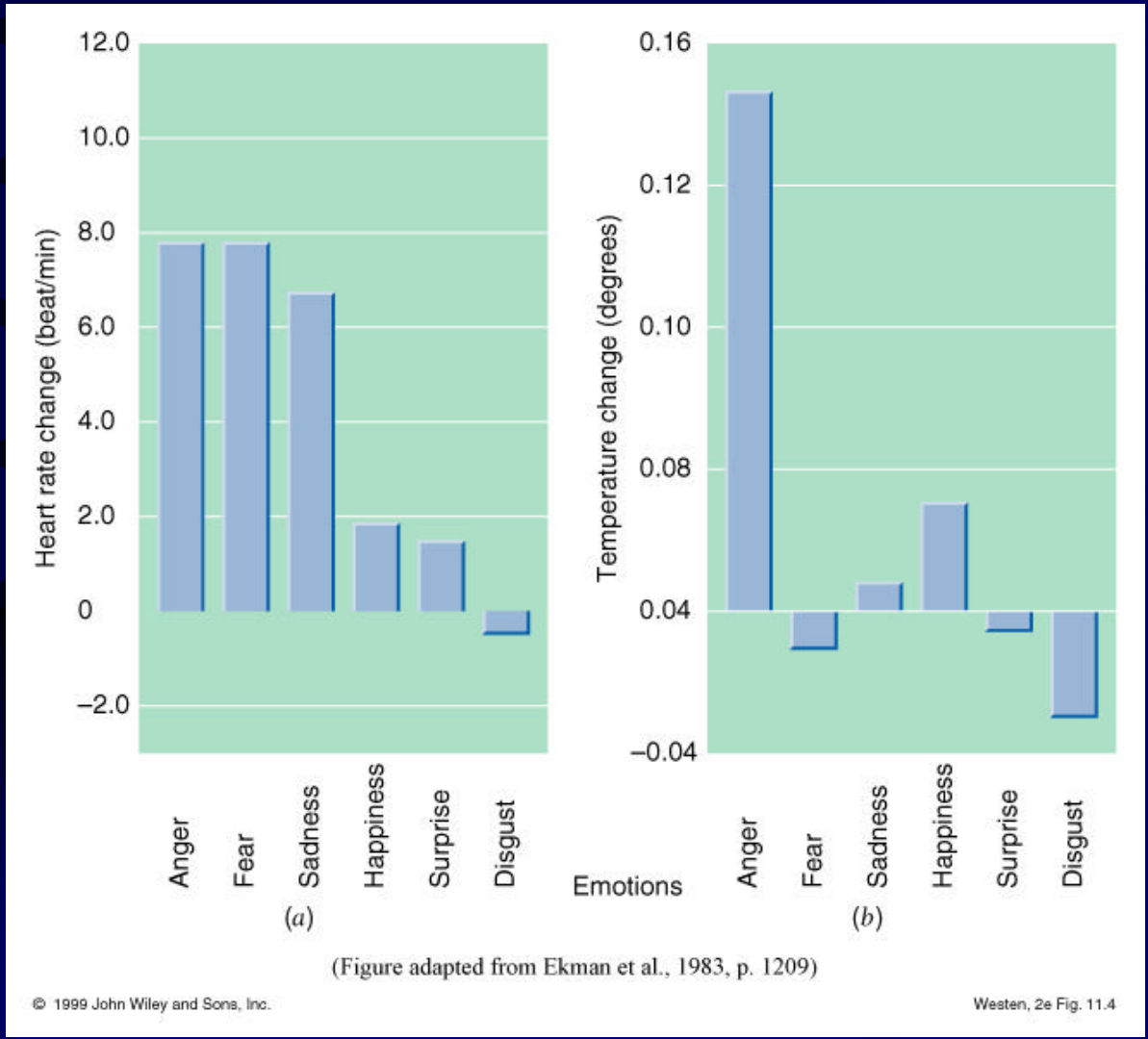
Topics: emotion, theories of emotion, interaction between emotion and cognition, stress and health

Emotion

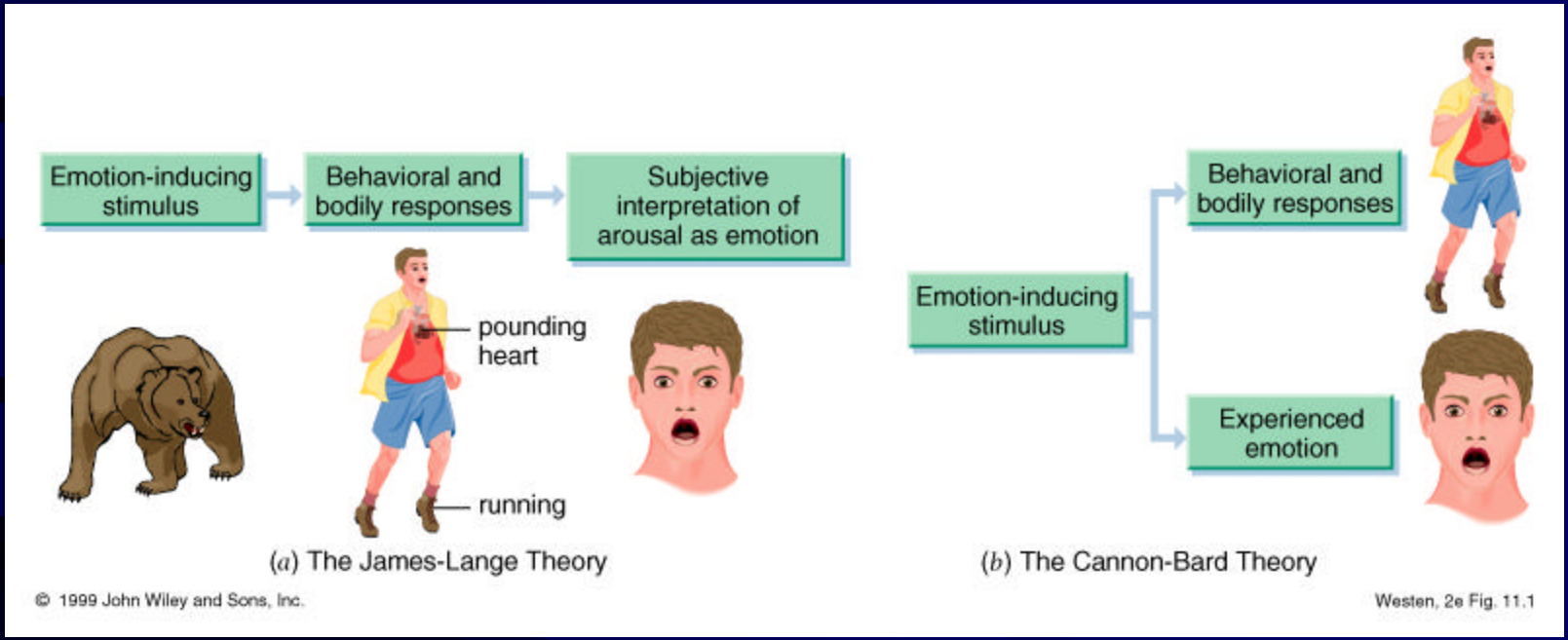
- Emotions reflect a “stirred up’ state
- Emotions have valence: positive or negative
- Emotions are thought to have 3 components:
  - Physiological arousal
  - Subjective experience
  - Behavioral expression

Emotional / behavioral expression

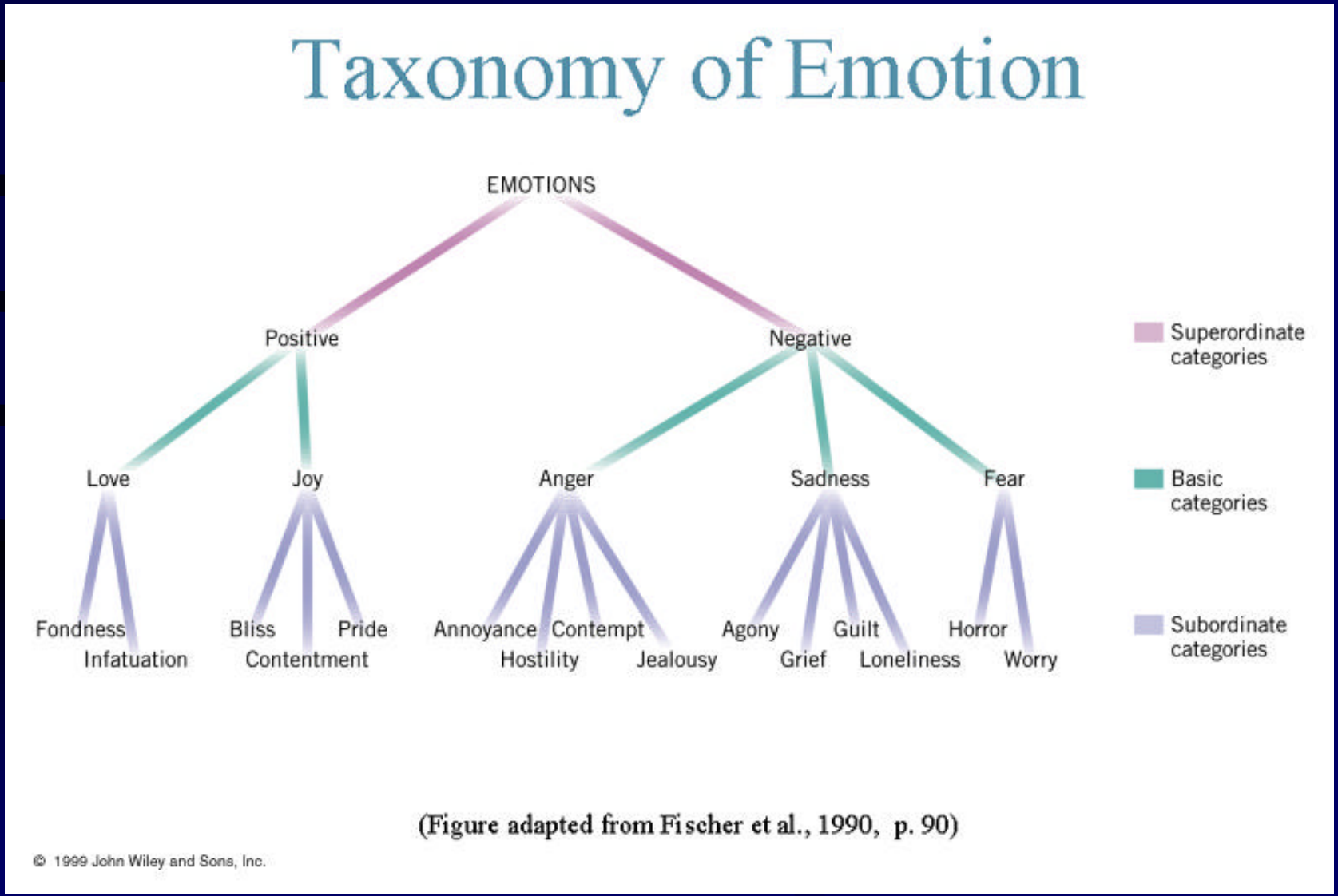
- Facial expression of emotion
- Emotional and cultural display rules



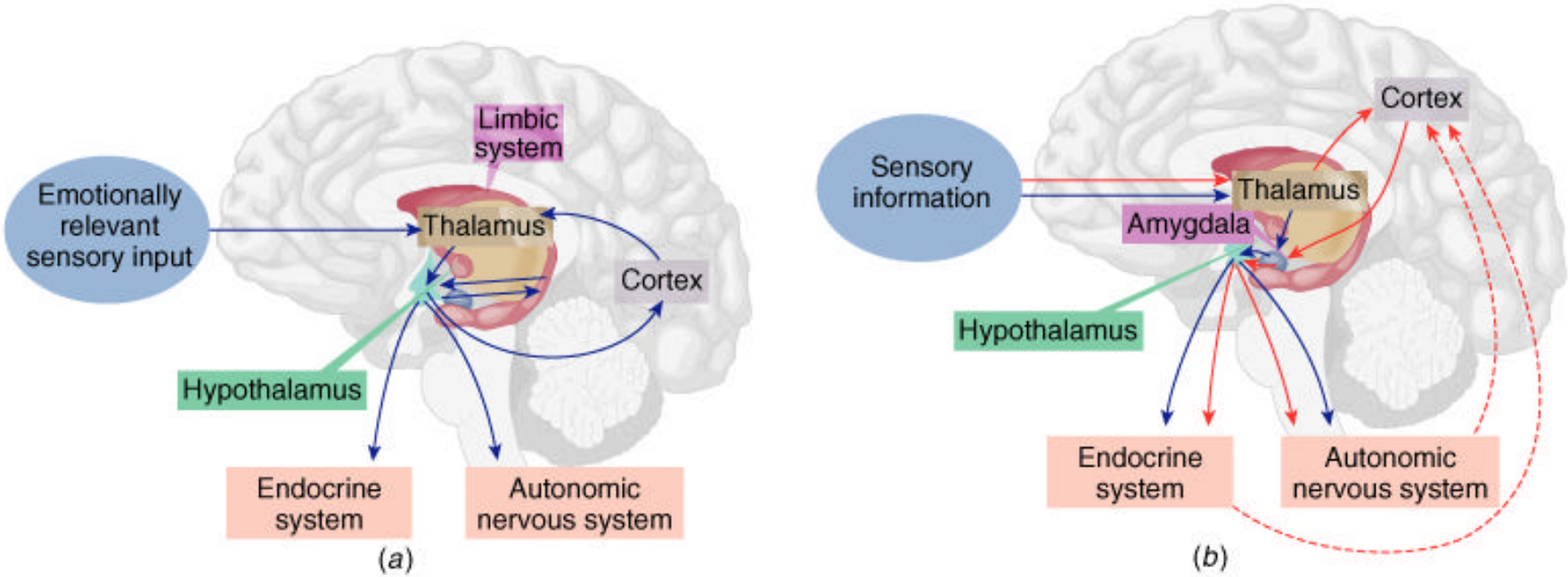
Theories of Emotion



Basic emotions (definition)
Positive and negative affect



Neural Substrates underlying emotion



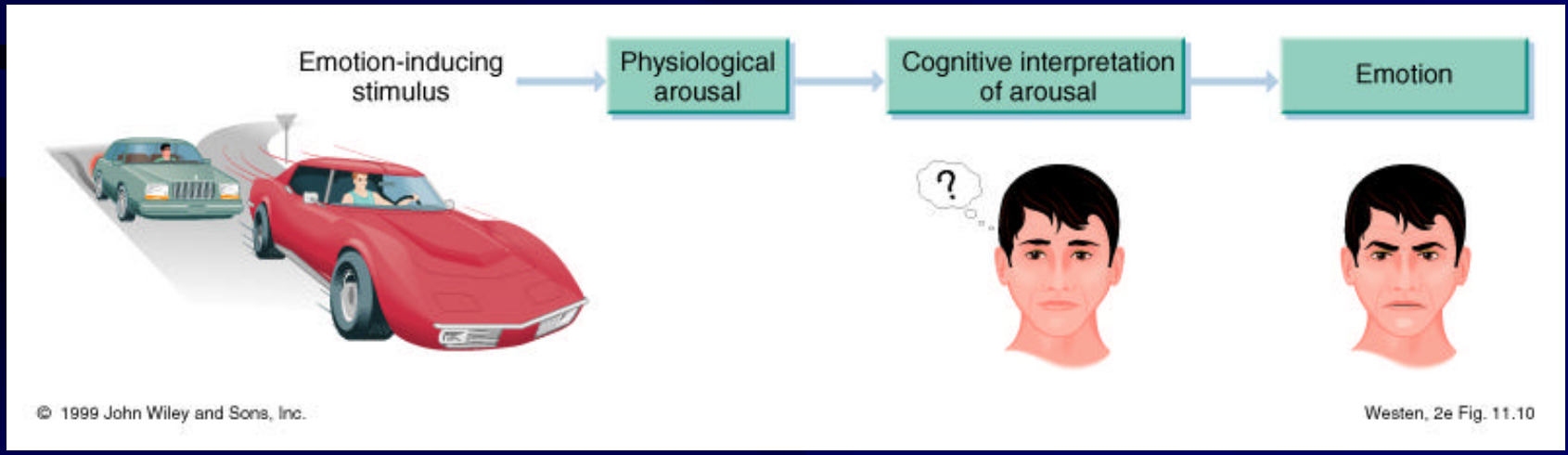
(Figure adapted from LeDoux, 1986, p. 329)

Westen, 2e Fig. 11.7

Perspectives on Emotion

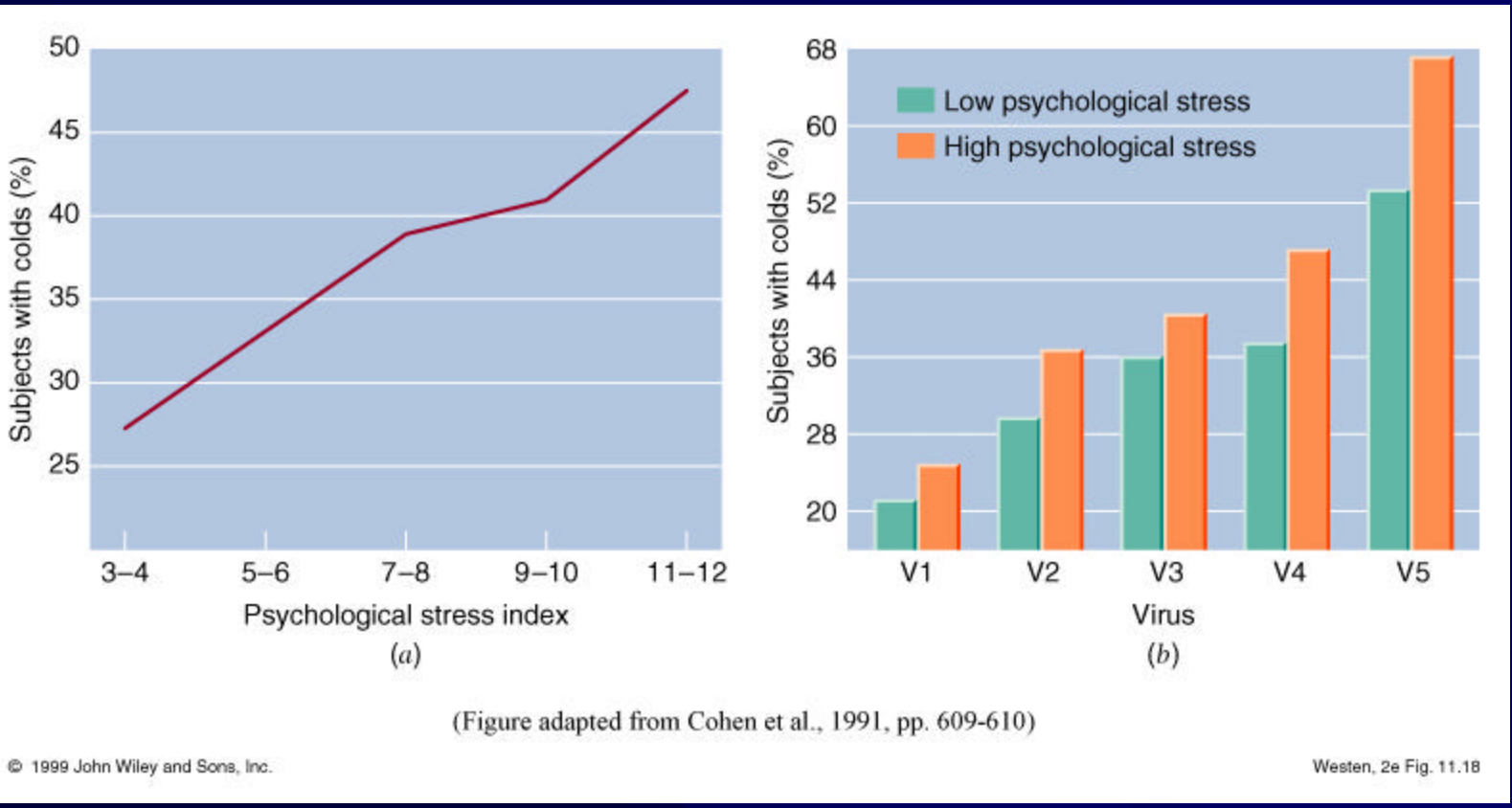
- Psychodynamic perspectives
- Cognitive perspectives

The Schachter-Singer Theory: Interpretation and emotion



Stress, Health & Personality

Sources of stress, stress and health



(Figure adapted from Cohen et al., 1991, pp. 609-610)

Westen, 2e Fig. 11.18

- Characteristics of Type A, B behavior patterns
- Optimism/Pessimism

Chapter 12 & Related Lectures

Topic: Personality, related theories and evaluations

Personality Research

- Personality refers to enduring patterns of thought, feeling, motivation, and behavior that are expressed in different circumstances
- The aim of personality research is to
  - Construct general theories of personality
  - Assess individual differences in personality

Psychodynamic Views of Personality

- Freud invoked a role of unconscious processes in the control of behavior
  - Based on his observations of clients
- Topographical model: argued for 3 levels of consciousness
  - Conflict occurs between the different aspects of consciousness
  - Requires compromise formation

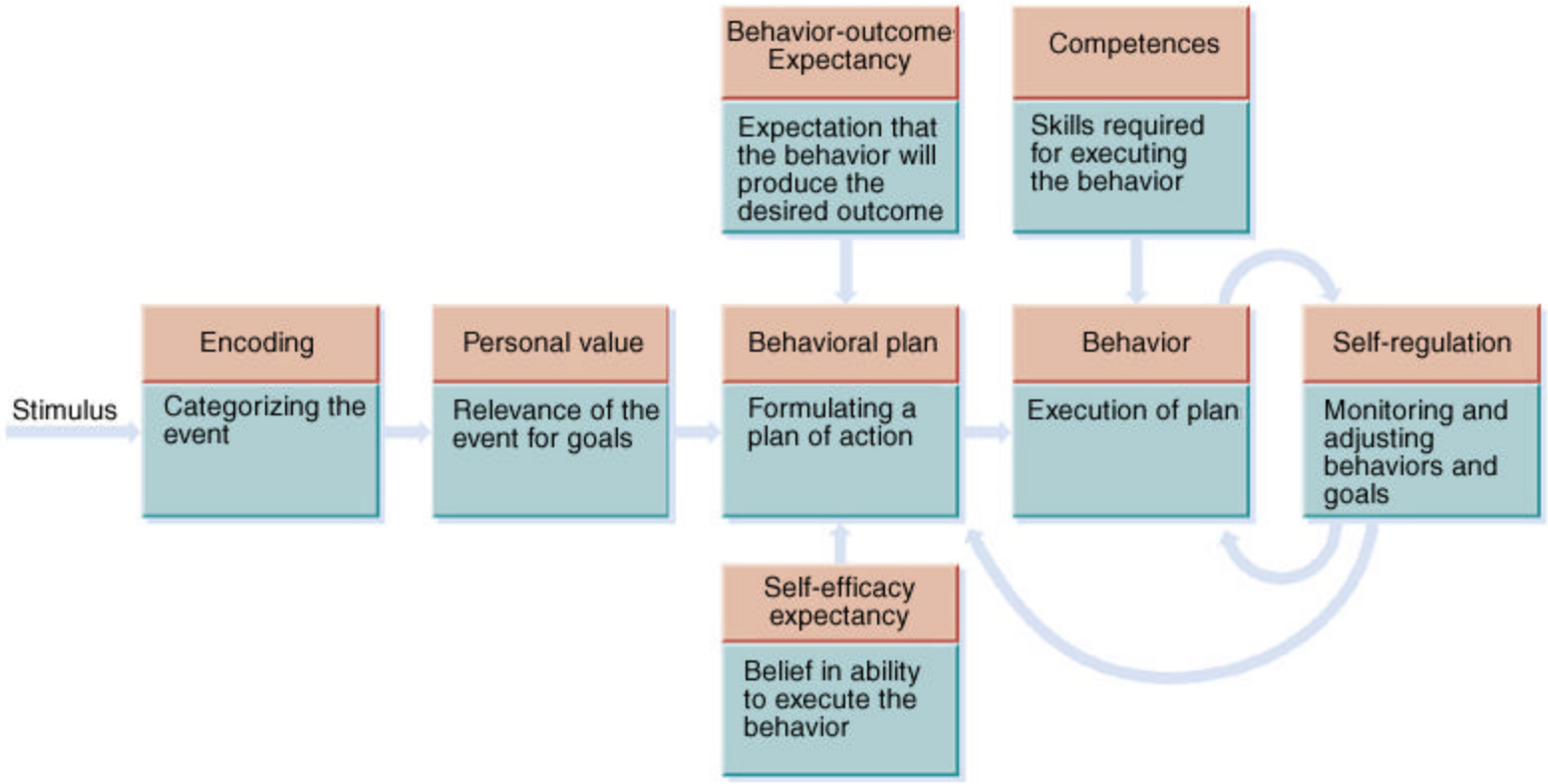
Freud's Developmental Model

- Human behavior is motivated by two drives
  - Aggressive
  - Sexual
    - Libido refers to pleasure-seeking and sensuality as well as desire for intercourse
- Libido follows a developmental course during childhood
  - Stages of development
  - Fixed progression of change from stage to stage
  - Notion of fixation at a particular libidinal stage

Cognitive-Social Personality Theory

- Emphasis on learned aspects of personality as well as expectations and beliefs of the person
  - Person must encode the situation as relevant
  - Situation must have personal meaning
  - Person must believe in their ability to carry out a behavior

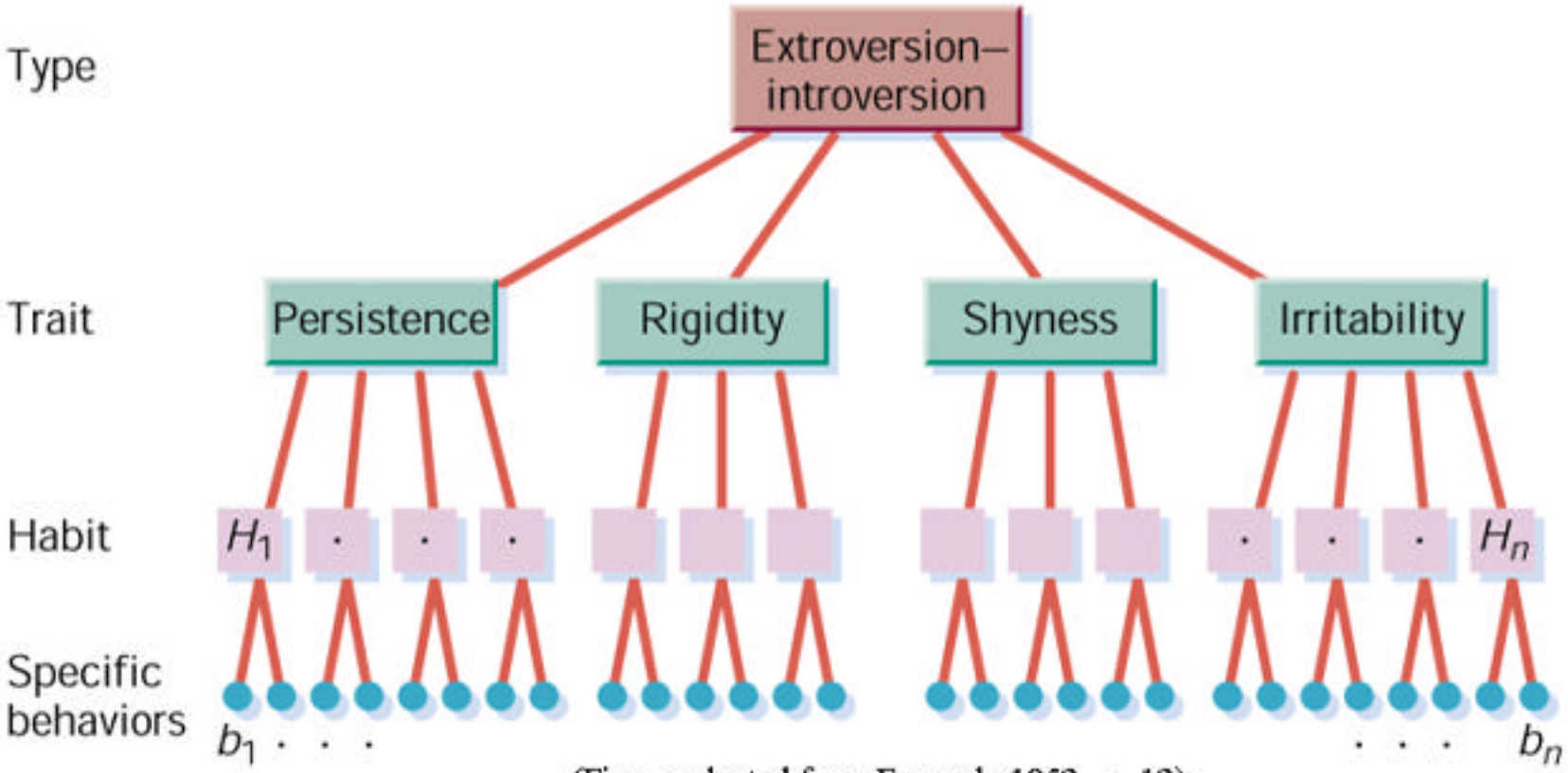
Cognitive-Social Model of Behavior



Trait Theories of Personality

- Trait: refers to emotional, cognitive, and behavioral tendencies as well as the underlying dimensions that form personality
- Traits can be measured by
  - Asking others to rate a person
  - Asking the person to fill out a questionnaire
- How many traits are required?
  - Allport noted some 18,000 traits
  - Cattell argued for 16 distinct traits (factor analysis)

Eysenck's Personality Types



(Figure adapted from Eysenck, 1953, p. 13)

The Big Five Factors of Personality

- Openness to experience
- Conscientiousness
- Extroversion
- Agreeableness
- Neuroticism

- OCEAN...

Humanistic Personality Approaches

- Reject the behaviorist and psychodynamic notions of personality
- Emphasize the notion that each person has a potential for creative growth
- Intent is to assist the person in developing to their maximal potential

Roger's Person-Centered Approach

- Rogers believed that humans are good by nature (in contrast to psychodynamic view of human nature)
- Rogers emphasized the notion of self-concept
- Each person has multiple selves:
  - True-self: the core aspect of being
  - False-self: the self that is created by distortions from interpersonal experiences
  - Ideal-self: what the person would like to be

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Please go to http://www.psy.vanderbilt.edu/psychology101/

Good Luck on Your Exam!