

Basic Psychology



DR. ADAM DIERCKX
CONSULTANT MEDICAL PSYCHOTHERAPIST

DR. HOSAM ELHAMOUI
ST6 IN MEDICAL PSYCHOTHERAPY AND GA

Today: an overview of



- Session 1:
Learning Theory
- Session 2:
Perception, Memory & Information
Processing
- Session 3:
Emotion & Motivation

Learning Theory



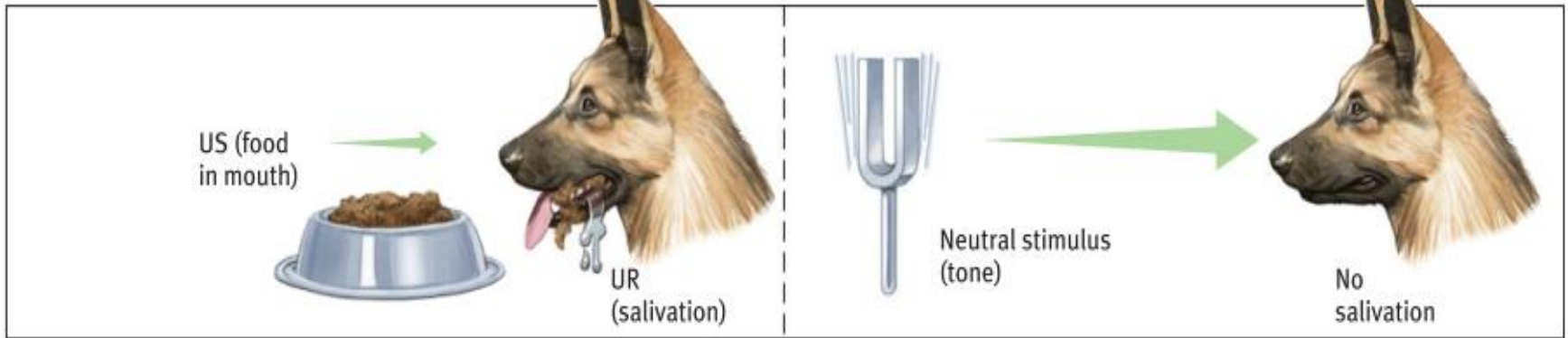
Associative learning theories:

- Classical Conditioning
- Operant Conditioning
 - ✦ Aversive learning and Punishment
- Control & cognition
- Observational learning
- Complex and experiential learning

Classical Conditioning



BEFORE CONDITIONING



An unconditioned stimulus (US) produces an unconditioned response (UR).

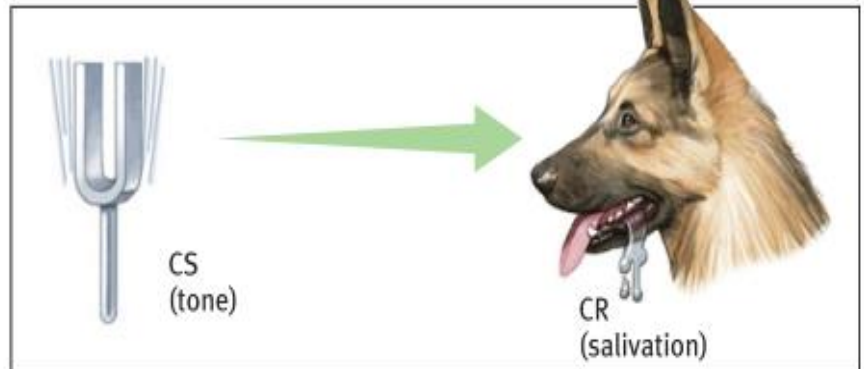
A neutral stimulus produces no salivation response.

DURING CONDITIONING



The unconditioned stimulus is repeatedly presented just after the neutral stimulus. The unconditioned stimulus continues to produce an unconditioned response.

AFTER CONDITIONING



The neutral stimulus alone now produces a conditioned response (CR), thereby becoming a conditioned stimulus (CS).

Larger Lesson



US
(passionate
kiss)



UR
(sexual
arousal)



CS
(onion
breath)



US
(passionate
kiss)



UR
(sexual
arousal)



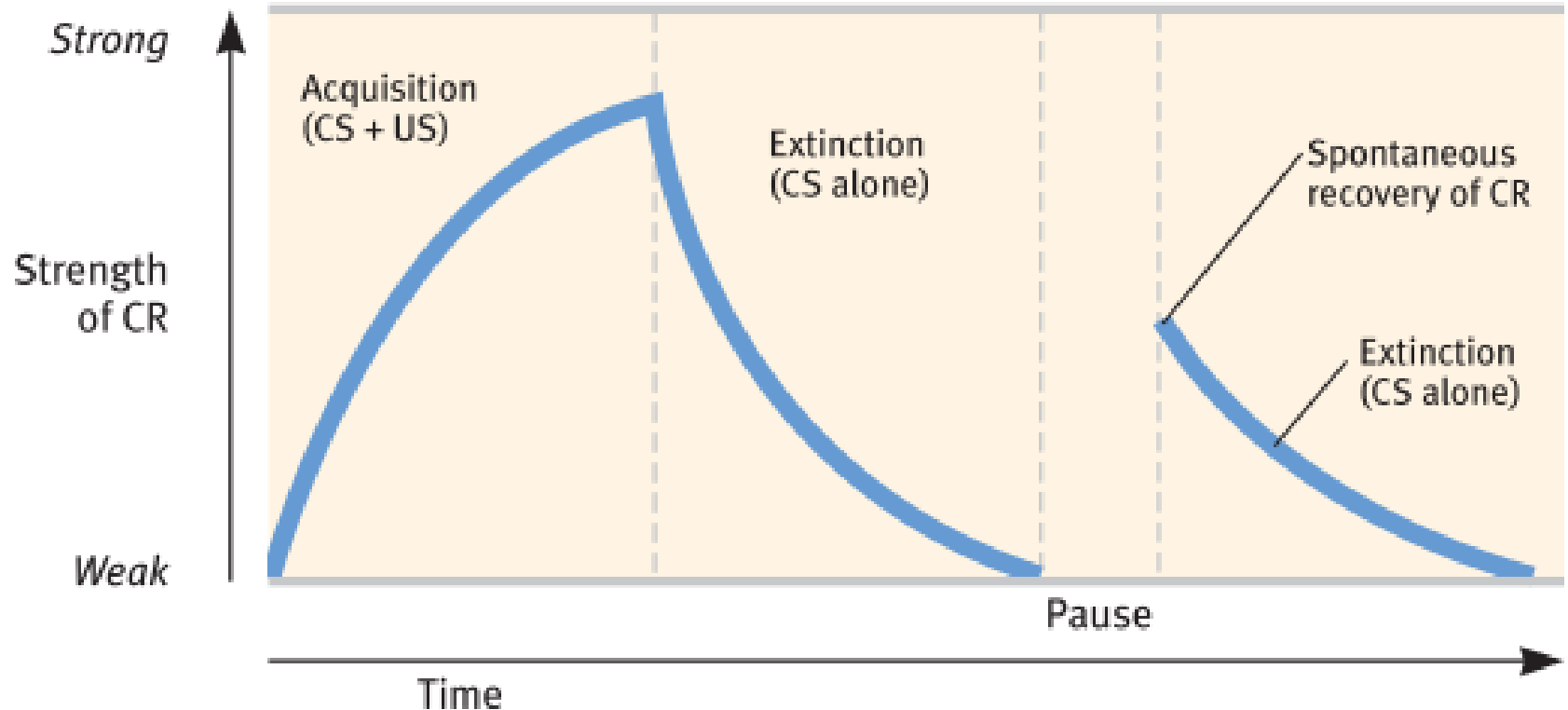
CS
(onion
breath)



CR
(sexual
arousal)



Classical conditioning



Classical Conditioning (2)

- **Generalization**

- **Child abuse and generalisation** (Seth Pollock)

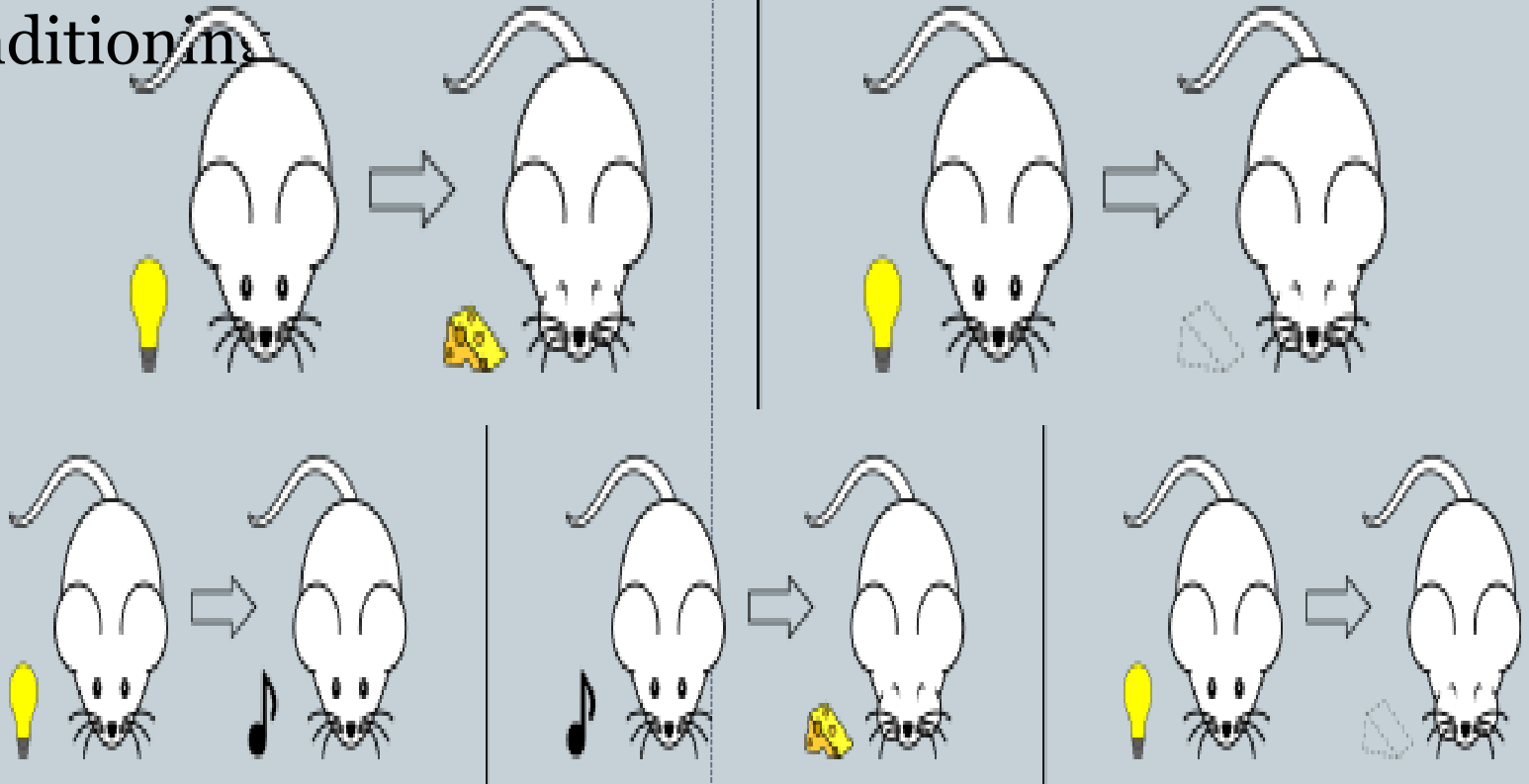
- **Conditioned fear**

- **John Watson (Albert's experiment)**



Classical Conditioning

- Discrimination
- Second order conditioning



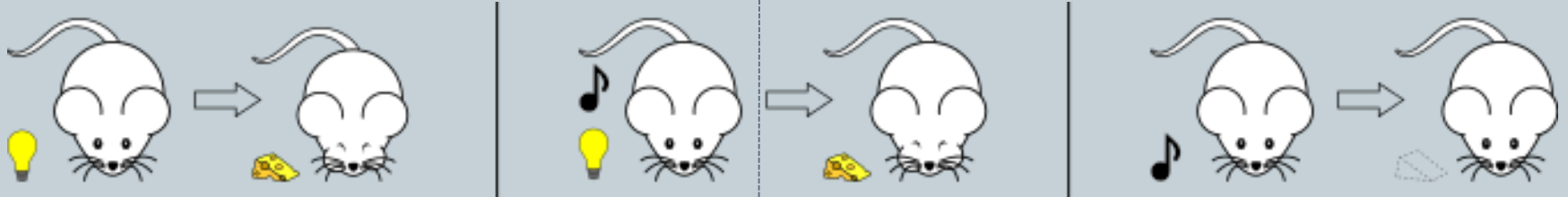
Classical Conditioning



- Predictability & Cognitive factors

- Contiguity (order)
- Contingency (probability)
 - ✦ Robert Rescorla

- Temporal Conditioning
- Redundancy / blocking



Fear Conditioning and emotional factors

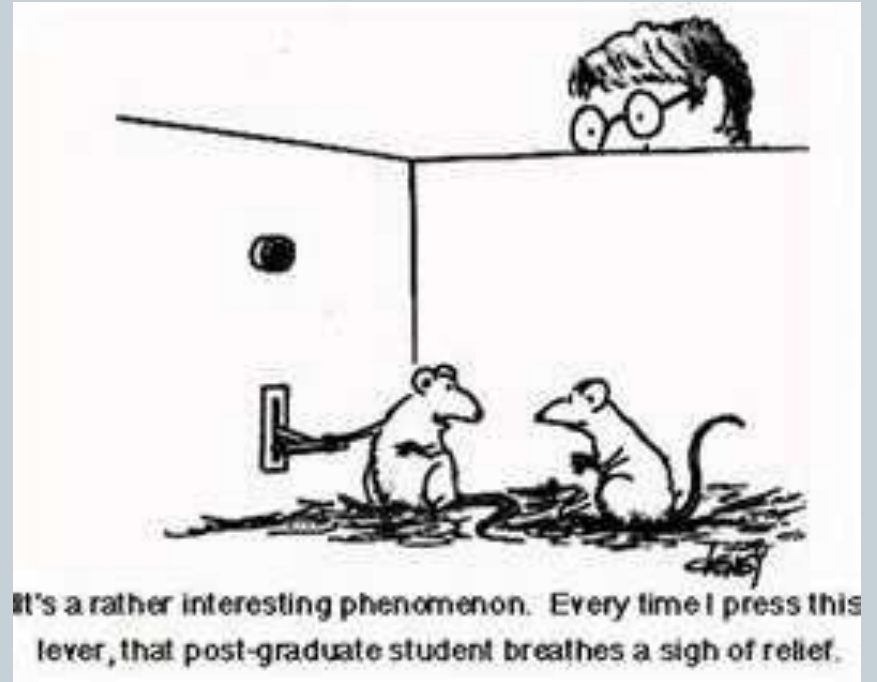
- “a burnt child dreads the fire”
- Albert’s experiment (Watson) 1920
- Skinner 1941
- Phobias and PTSD
- Amygdala and hippocampus
- Therapy (EMDR, Flooding, Graded exposure) aims to undo the conditioning

Classical Conditioning Critique

- Ignores cognitive process
 - Alcohol inhibition therapy
 - Biological predisposition
 - Kimble
 - Reductionist and deterministic
- Scientific and proven by experiments.

Operant Conditioning - Skinner

- Learning that a behaviour (response) OPERATES on the environment
- Thorndike's Law of effect
- Respondent Vs. Operant behavior



Operant conditioning



Operant Conditioning



- Baseline
- Reinforcement
- Extinction
- Discrimination
- Generalization

- **Advanced OC**

- Shaping
- Reinforcers (1^o / 2^o)
- Schedules

Operant Conditioning - Shaping

- Shaping (successive approximation)

- Are we different?
 - Marketing



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Modifying operant behaviour: reinforcers

- It **INCREASES** behaviour
- Primary reinforcers
- Secondary reinforcers
- Immediate or delayed
 - Delay my lead to extinguishing behaviour

- Positive reinforcement
 - ↑ Behaviour → ↑ positive reinforcer
- Negative reinforcement
 - ↑ Behaviour → ↓ aversive reinforcer

Rate of Reinforcement



- continuous reinforcement
 - Quick acquisition
 - Quick extinction
- partial (intermittent) reinforcement
 - Slower acquisition
 - Slower extinction (pigeons)
- Us Vs. Pigeons !
 - Slot gambling

Rate of Partial Reinforcement (schedule)



- Fixed-ratio schedule
 - Nero stamp card!
- Variable ratio schedule
 - Gambling
 - Very resistant to extinction
- Fixed Interval
 - Salary
- Variable interval
 - Checking email
- Extinction and delayed reinforcement
 - CASC
 - After death !

Punishment



- It **REDUCES** frequency of behaviour
- **Positive Punishment**
 - Spanking!
- **Negative Punishment**
 - No toys!

- **Avoidance Learning**
 - Avoidance is the behaviour
 - **Escape conditioning**
Agoraphobia

Operant conditioning

- **Seligman Preparedness**
 - Spider phobia VS. chair phobia!

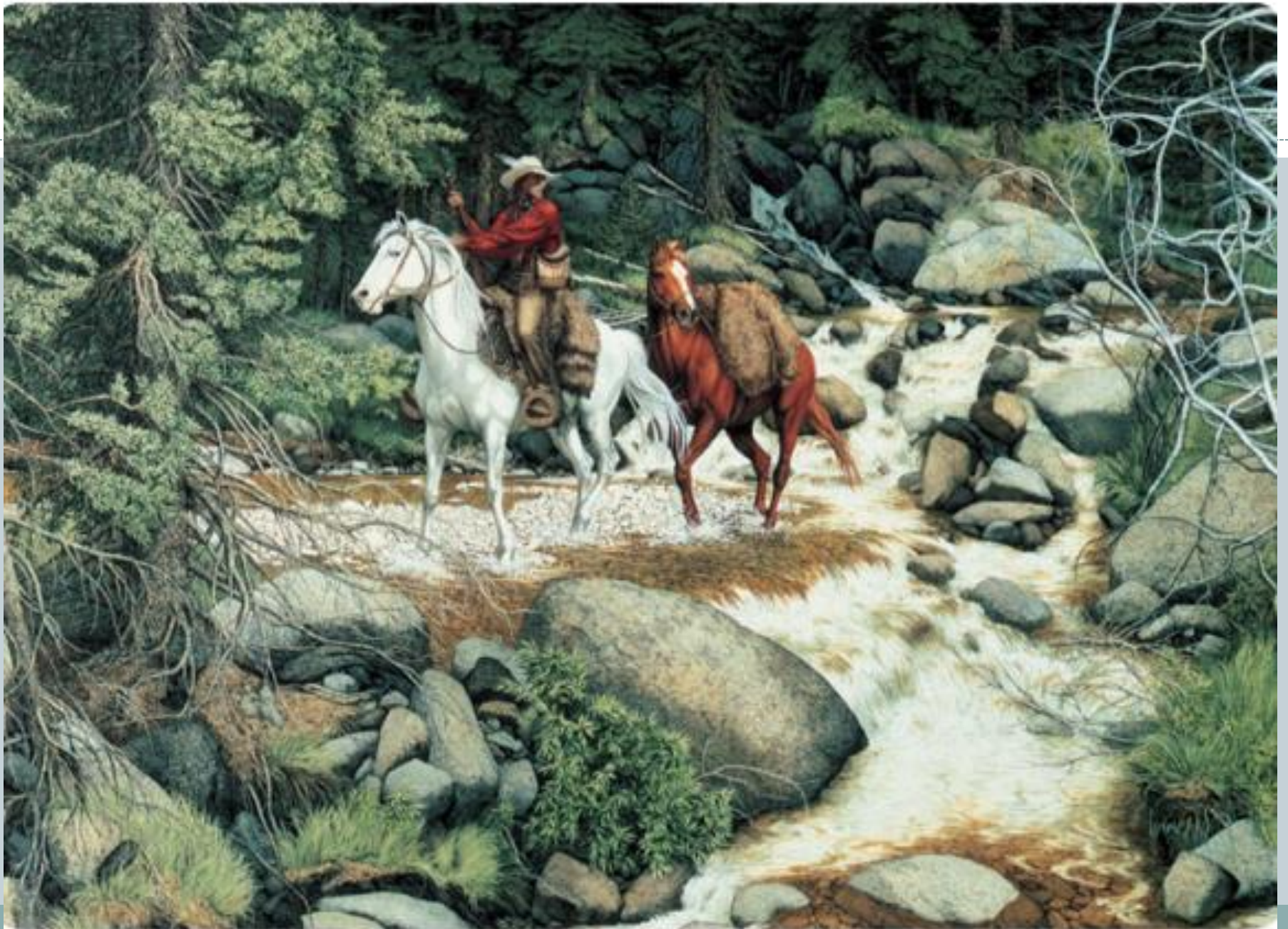
Learning by observation



- **mirror neurons**, whose activity provides a neural basis for **imitation** and observational learning.
 - Baby sticking tongue shortly after birth
- Learn helplessness: Seligman. Depression

Bandura's Bobo Doll Experiment



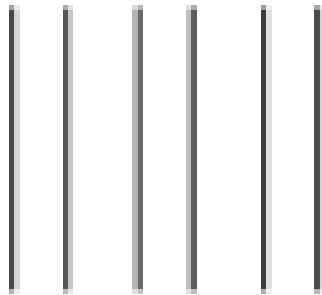


Thresholds: when can a stimulus be detected?

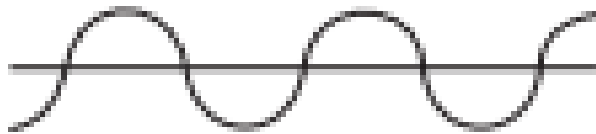


- Absolute threshold
- Difference Threshold
- Weber's law
 - Proportional difference (constant **proportion**) between two stimuli to detect a difference
- Signal detection theory
 - psychological state (such as affective instability, concern about a child, fear in a forest)
- Sensory adaptation
 - tinnitus

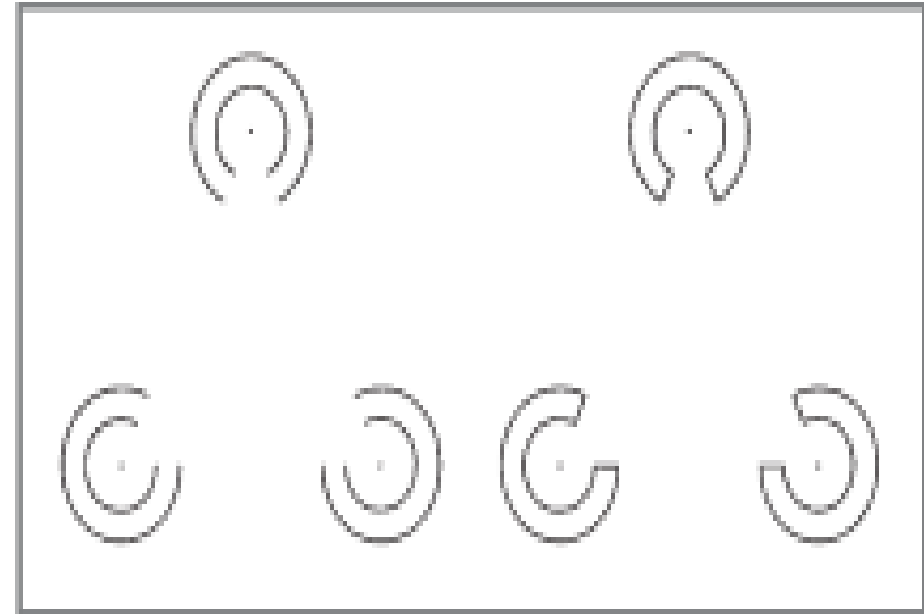
Gestalt



Proximity



Continuity

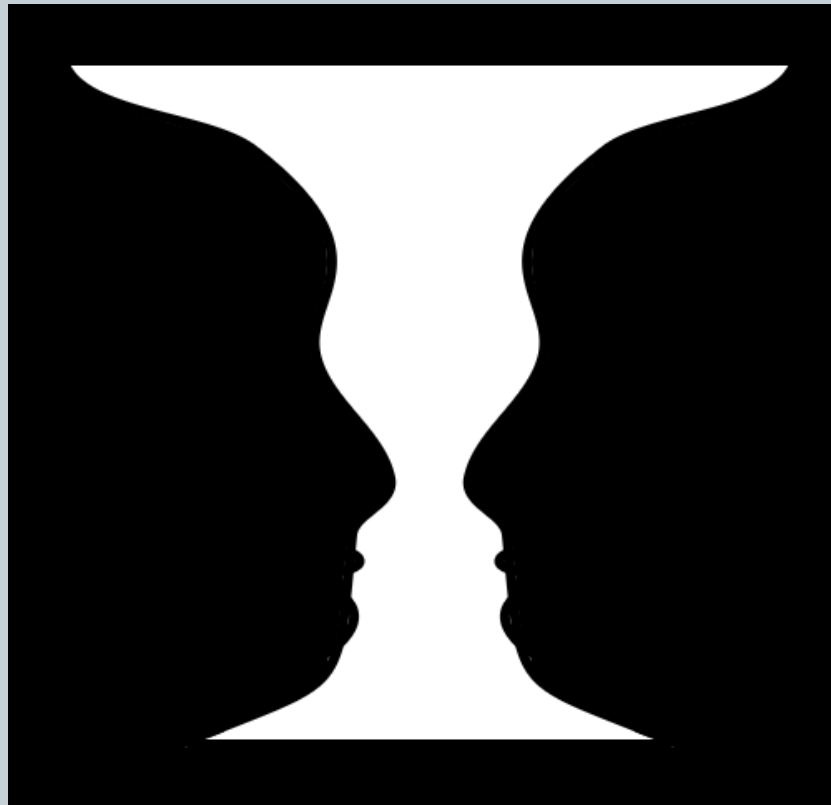


Connectedness

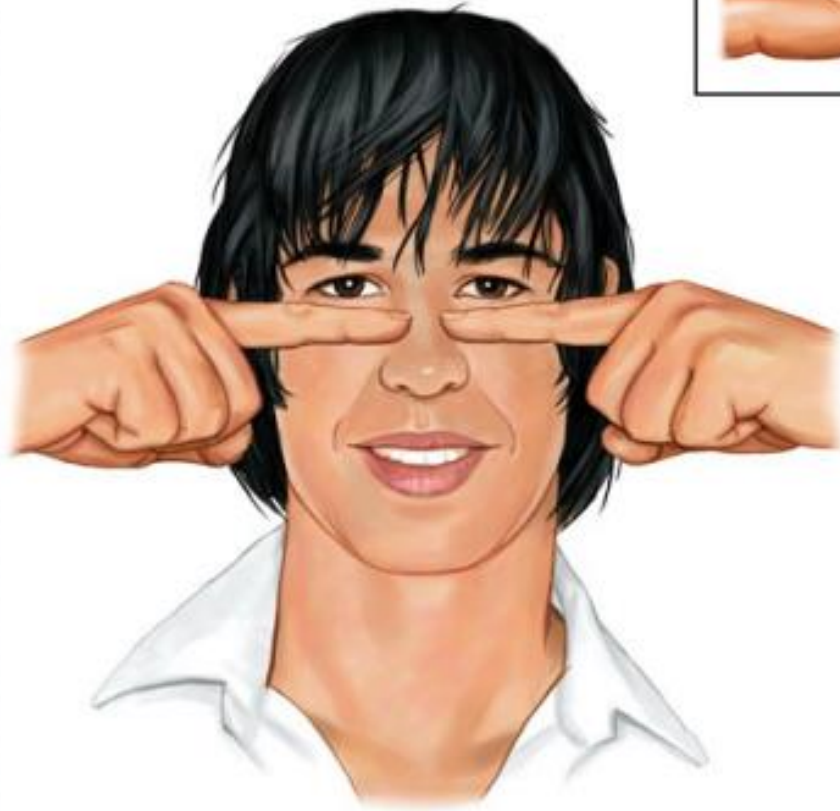
Figure-ground differentiation and reversal



- Rubin's vase



Depth perception



- E
-



Perception – Perceptual set



- V
- C
- S

Object Constancy



- The object is always perceived as the same despite changing input (size, shape, location, brightness)

Perceptual Psychopathology



- Hallucinations
- Illusions
- Neurological abnormalities (prosopagnosia)

Information Processing



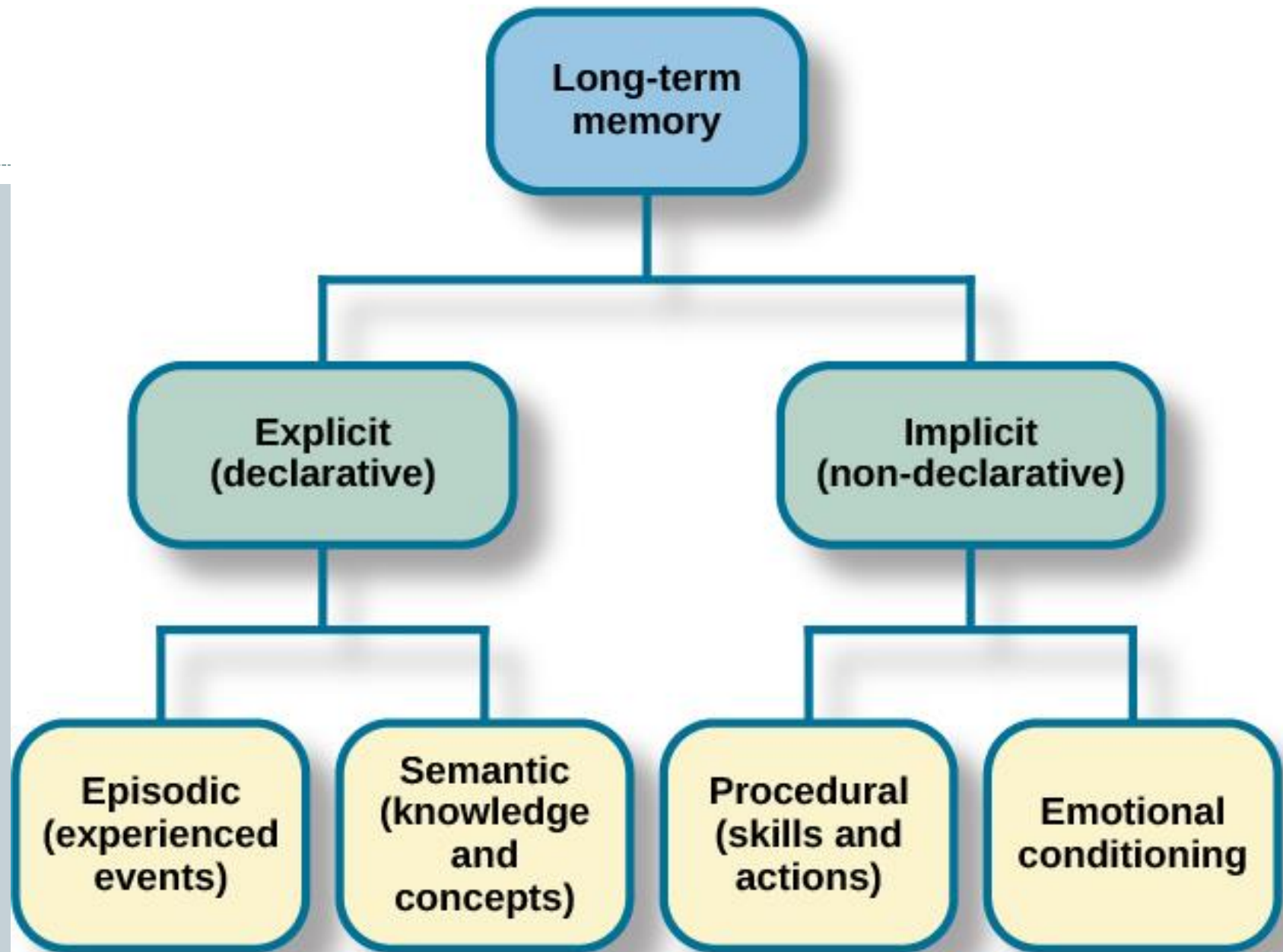
- Data driven processing – computer analogy/limitation
- Concept driven processing
- Attention
 - Selected
 - Alternating (e.g. cocktail party effect)
 - Divided (harder in the same sensory modality)
 - Sustained (concentration)

Exercise!

Memory



- Encoding
- Storage
 - Sensory memory
 - Short term (working) memory
 - Long term memory
- Retrieval
- Forgetting



Forgetting

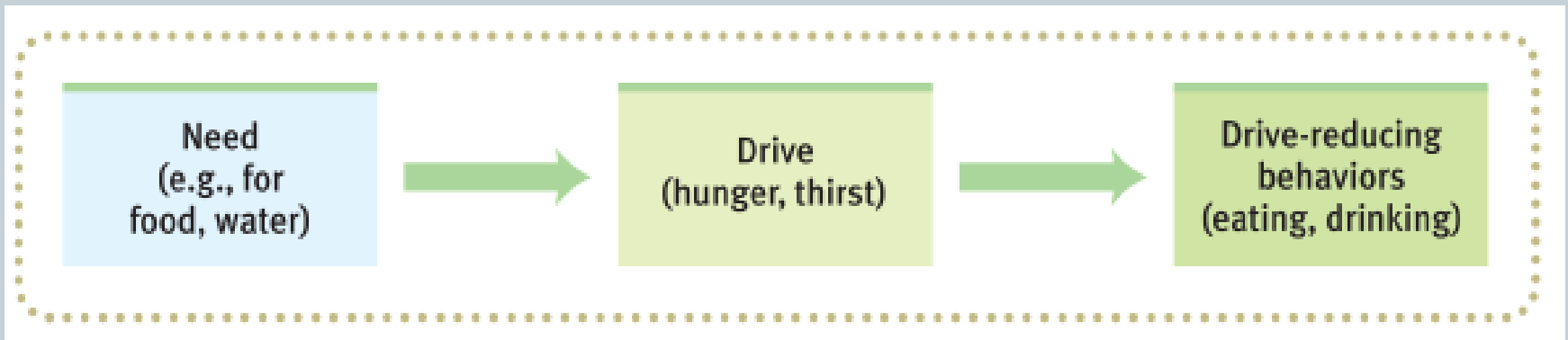


- Information decay (lack of reinforcement)
- Anterograde Amnesia
- Retrograde Amnesia
- Transient global amnesia
 - Fuge
 - Korsakoff's
- ECT memory loss
 - Unilateral is less
- Post head injury

Motivation



- process involved in initiation, direction and energisation of behaviour.
- Extrinsic motivational theories (Hull)
 - Drive reduction (to reduce arousal)





- Intrinsic motivational theories
 - Optimal arousal (baby curiosity increases arousal)
 - Cognitive dissonance (Festinger)
 - ✦ Attitude discrepant behaviour
 - Need for achievement (Maslow)

Maslow Pyramid



AP Photo/Pavel Rahman

Emotion



- Theories of Basic Emotion
 - Early theorists
 - Plutchik
 - Panksepp

Sight of oncoming car
(perception of stimulus)



James-Lange Theory

Cannon-Bard Theory

Schachter-Singer
Two-Factor Theory

Pounding heart
(arousal)



Pounding heart
(arousal)



Fear
(emotion)




Pounding heart
(arousal)



Cognitive label
"I'm afraid"

Fear
(emotion)

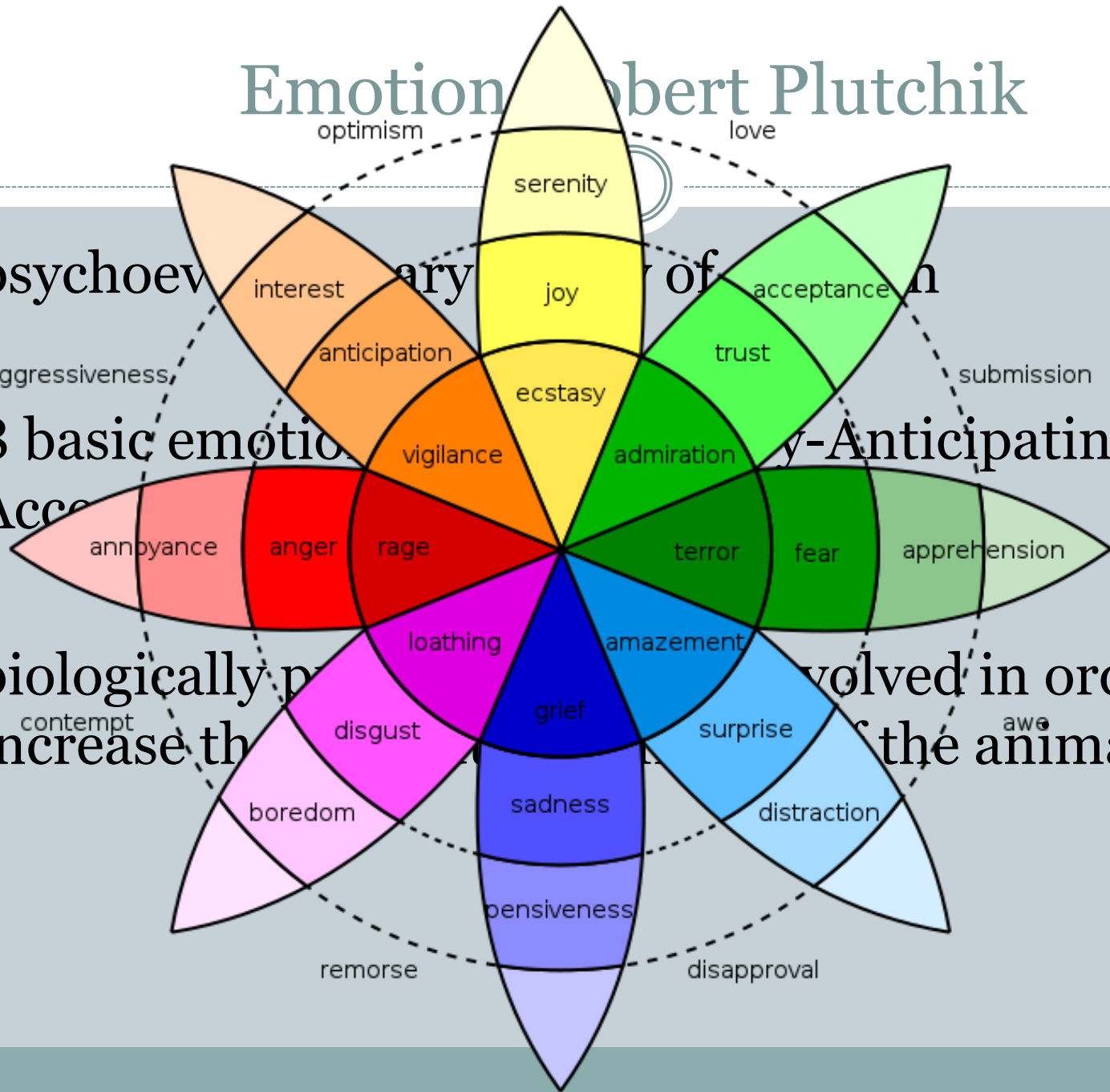


Fear
(emotion)



Emotion Robert Plutchik

- psychoevolutionary theory of emotion
- 8 basic emotions
- biologically prepared to increase the chances of survival of the animal



Emotion- Panksepp



- Levels of control in brain emotion-affective processing (primary-secondary- tertiary)
- Basic Emotion Control Systems x7
- **SEEK**
 - CURIOSITY; LUST; PLAY
- **FEAR**
- **GRIEF (Formerly PANIC)**
 - SEPARATION DISTRESS; CARE
- **RAGE**



- **Background reading**
 - David Myers – Psychology. Text book
 - Affective neuroscience of the emotional BrainMind: evolutionary perspectives and implications for understanding depression [Jaak Panksepp](#), PhD

- **Any questions?**