

WEEK #6 - CONSCIOUSNESS

- Consciousness → an ambiguous term
- It is not a thing but rather a state
- It is a personal experience
- We can turn our consciousness to focus on internal mental events (e.g., daydreaming) or to the external environment
- The content of consciousness → the subjective awareness of mental events
 1. Structuralism → Wundt, Titchener studied the contents of the conscious mind
 2. Functionalism → William James viewed consciousness as a constantly moving stream of thoughts, feelings, and emotions
- Ordinary waking consciousness includes all the experiences you are aware of at a given time, including for example:
 - Thoughts
 - Perceptions
 - Feelings
 - Images
- It includes your awareness of what you are doing coupled with the fact that you are doing it → subjective sense of self (e.g., I think therefore I am)
- The location of consciousness → is distributed throughout the brain
 - Hindbrain and midbrain are important for arousal and for sleep
 - Damage to the reticular formation can lead to coma
 - Prefrontal cortex is key for conscious control of information processing
- It mainly occurs in the pre-frontal brain regions → dorso-lateral prefrontal cortex and anterior cingulate
- The measurement of consciousness is varied
 1. Self-report scales
 2. Experience-sampling techniques
 - Think-aloud protocols – Participants speak aloud as they solve a task their reports are used to identify:
 - their mental strategy
 - how they represent knowledge
 - any discrepancies between task performance and awareness of processes used
 - Beeper studies – device prompts the wearer to report thoughts, feelings etc
 3. Brain imaging techniques (EEG, fMRI, PET)

- Stimulates release of dopamine → feelings of pleasure
- Enhances GABA neurotransmitter
- Small doses can improve adults' reaction times
- Alcohol is broken down very slowly in the body → larger doses overtax the CNS
- Those who expect low implications → alcohol has a low impact on them
- Those who expect high implications → alcohol has high impact on them
- At blood level 0.10 → driving accidents due to night vision problems
- At blood level 0.15 → negative effects on thinking, memory, judgement, emotional instability, loss of motor control
- Prolonged heavy alcohol use → physical dependence, tolerance, addiction, brain damage, cognitive impairment, health problems
- Alcoholism diagnosis is appropriate when amount and frequency of intake has reached a certain threshold → there is an inability to abstain, and life factors are negatively impacted
- Psychosocial implications include detrimental effects on job, family, and health

STIMULANTS

➤ Stimulants Effects

- Maintain arousal level (hyper-alertness, energy, etc)
- Mood alteration enhanced
- Increased self-confidence
- Paranoid delusions
- Can cause long term changes in neurotransmitter systems (norepinephrine, serotonin, and dopamine)

➤ Cocaine

- Increases NE and dopamine
- Hyper-arousal
- Dramatic contrast between euphoric highs and depressive lows → increased dosage and frequency of use
- Chronic use can lead to depletion in NE and dopamine
- Diminished judgement
- Inflated sense of one's own abilities
- Paranoia, anxiety, and panic

➤ Amphetamines

- Molecular structure similar to dopamine, norepinephrine

- Weber Fraction: The ratio of change in intensity required to produce a JND → WF is constant

Weber Fraction:

The ratio of change in intensity required to produce a JND.

Weber's Law: the WF is constant!

Object 1 weighs 100 grams. Difference noted at 103 grams. JND=3 grams. $WF = 3/100 = .03$

Object 2 weighs 1000 grams. Difference noted at 1030 grams. JND = 30 grams. $WF = 30/1000 = .03$.

FECHNER'S LAW:

- Fichtner believed it was possible to apply Webers law, which is about physical changes to a stimulus to estimate psychological experience of a stimulus
- He argued that just how intensely a person would report experiencing a sensation would have to be based on the amount of stimulus energy that was actually present.
- In other words, at low levels of stimulation, it takes only a small increase in stimulation to produce an increase in your subjective experience.
- On the other hand, at high levels of stimulation, it takes a very large increase in physical stimulation to produce an appropriate increase in your subjective experience
- The magnitude of a stimulus grows geometrically as the subjective experience of intensity grows arithmetically

STEVEN'S POWER LAW

- Law works most of the time, but it was eventually modified by SS Stevens because it did not quite apply to all stimuli and all senses.
- if you have a weak stimulus → it takes a small increase in the intensity of a stimulus to reach a just noticeable difference
- if you have strong stimulus → it takes a large increase in the intensity of the stimulus to reach just noticeable difference
- As the perceived intensity of a stimulus grows arithmetically, the actual magnitude of the stimulus grows exponentially (squared, cubed, etc.)

SIGNAL DETECTION THEORY

GESTALT PERCEPTUAL



LAWS OF

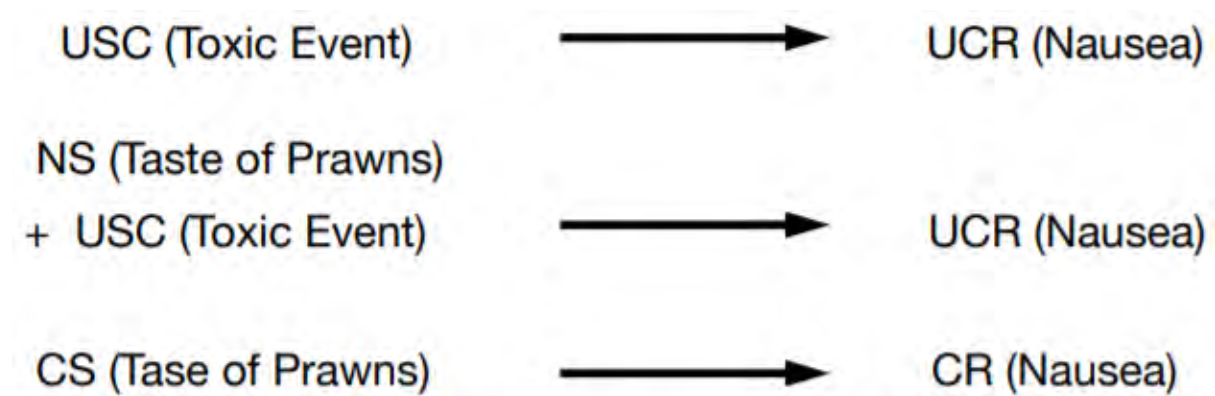
ORGANISATION

- The brain takes the vast amount of sensory information that enters our system at any given moment and organises it into meaningful units
- A group of researchers in the 1920-30's were interested in how sensations were organised into perceptual organisation
- The gestalt psychologists argued that in perception → the whole is greater than the sum of its sensory parts
- The attributes of the whole are not deducible from analysis of the parts in isolation
- It is a unique attribute that comes from the whole rather than simply being the sum of its parts
- Gestalt psychologist discovered a small number of perceptual rules that the brain seems to use consistently automatically and unconsciously to organise sensory input into meaningful wholes
- Gestalt principles exemplify the way the brain organizes perceptual experience to reflect the regularities of nature
- They are "rules of thumb" or Heuristics:
 - Reflect experience
 - Used unconsciously
 - Occasionally misleading

THE LAW OF SIMILARITY

TASTE AVERSIONS

- Taste aversions have been crucial to our survival → don't eat things that can kill us or make us ill
- A learned aversion to a taste associated → with an unpleasant feeling usually nausea
- Taste aversions unlike conditioning can occur after one trial → but not always

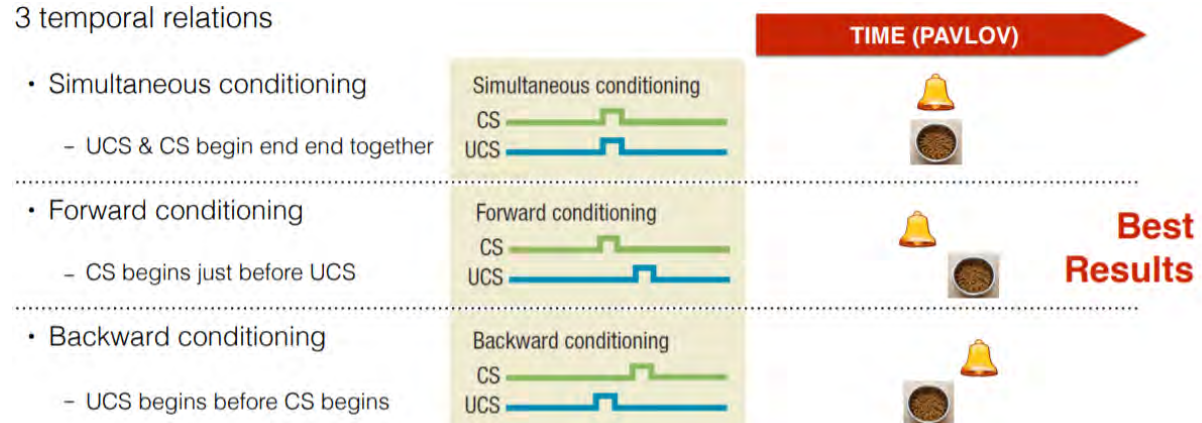


- For example, after eating prawns you feel sick → the implications of this are:
 1. Behavioural → "avoids prawns"
 2. Physiological → "nausea, unwell, anxious etc"
 3. Emotional → "I hate prawns"
 4. Cognitive → "If I eat prawns, I will feel sick"

ACQUISITION PHASE

- The process of pairing a conditioned stimulus with an unconditioned stimulus.
- The conditioned stimulus will acquire the ability to elicit a conditioned response
- There are three temporal relations

3 temporal relations



DEDUCTIVE REASONING

- Specific premises are given
 - For example, → The dog always barks when there is someone at the door and the dog barked
 - Does the premise allow a particular conclusion to be drawn? → Barking so there is someone at the door
- Uses syllogisms → for example
 - Premise One: All 30-year-old women are blonde
 - Premise Two: Holly is a 30-year-old woman
 - Conclusion: Holly is blonde
 - The reasoning is correct – is the premises logical?

INDUCTIVE REASONING

- A conclusion is made about the probability of some state of affairs → based on the available evidence and past experiences
- For example: Cleo is a cat → Cleo likes to take showers → therefore all cats like to take showers
- Generalizing from specific instance to an entire category
- Everyday thinking often involves inductive processes
- Role of belief bias
 - Conclusions that concur with real world knowledge are judged to be valid
 - If my finger is cut, then it bleeds → my finger has blood on it → therefore, my finger is cut
 - The logical premises here are overlooked
 - Relying on real world knowledge is less effortful than formal reasoning

ANALOGICAL REASONING

- Analogical reasoning is the process by which people understand a novel situation in terms of a familiar one
- The novel and familiar situations must each contain a number of elements that can be mapped onto each other
- We use analogies to categorise novel situations, make inferences, and solve problems
- Analogy constraints include
 1. relational similarity
 2. surface similarity
- Analogy constraints allow for the process: base/source → mapping → target
- Benefits of analogous thinking: we can use analogous reasoning to make conclusions about things we have not actually seen or experienced firsthand → transitive Inference