



IHS – L21

Introduction to Psychology Lecture 2

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Overview

- Recap
 - Everyday examples to understand the psychological engagement
 - What is Psychology – Operational definition
 - Disordered and Ordered Mind and Behaviour
 - Activity and discussion
 - Key Questions in Psychology –
 - What are the bases of Psychology?
 - How does the mind allow us to function effectively in the world? Adaptability and failure to do so
- Today's session – Key Questions
 - Why does the mind occasionally function so ineffectively in the world?
 - How do we make sense of the world around us ?

- **What are the bases of Psychology ?**
- **How does the mind usually allow us to function effectively in the world?**
- **Why does the mind occasionally function so ineffectively in the world?**

**WHY DO WE THINK THE WAY WE THINK ?
WHAT MOTIVATE US TO THINK?**

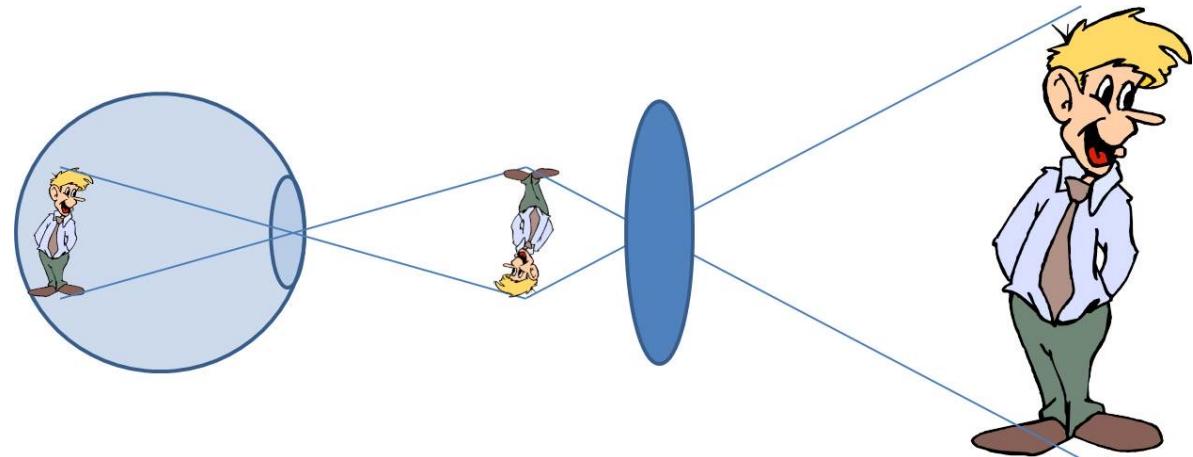
Why does the mind occasionally function so ineffectively in the world?

Activity I – use the pointer: follow as instructed!

Why does the mind occasionally function so ineffectively in the world?



NORMAN'S DOOR



INVERTED IMAGE – STRATTON, 1897, US PSYCHOLOGIST



Why does the mind occasionally function so ineffectively in the world?



Perception: Inverted Vision

Why does the mind occasionally function so ineffectively in the world?

Case 1: American Airlines Flight 965 accident (1995) , loss of 159 passengers and crew – due to poor design process

- Loss of waypoints from the navigation computer
- Inconsistent/ unfamiliar labelling on charts
- **Poor communication between air-traffic controller and pilots** as pilots' request did not make sense to air-traffic controller as pilots did not know enough non-aviation **English to convey the information**

Explanation

- **Stress build-up due to loss of waypoints**
- **Cognitive load – while interpreting unfamiliar labels under time pressed situation**
- **Leading to poor communication between air-traffic control system and pilots**

Why does the mind occasionally function so ineffectively in the world?

Case 2: 1999 – a commuter train collided with a high-speed train, costing 31 people lives

- Damage evaluation revealed two man-machine interaction issues –
 - Minor warning and critical warning had same type of auditory alarms
 - When pilot acknowledge the alarms, the system cancelled them altogether, eliminating a layer of protection

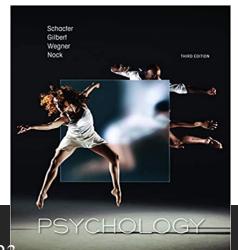
Explanation –

- **Lack of perceptual discrimination** - similar alarm lead to poor assessment of the severity, so no action was taken
- **Status Feedback and severity assessment** - Lack of continuous threat or approaching threat, as the system shut the alarm after the acknowledgement

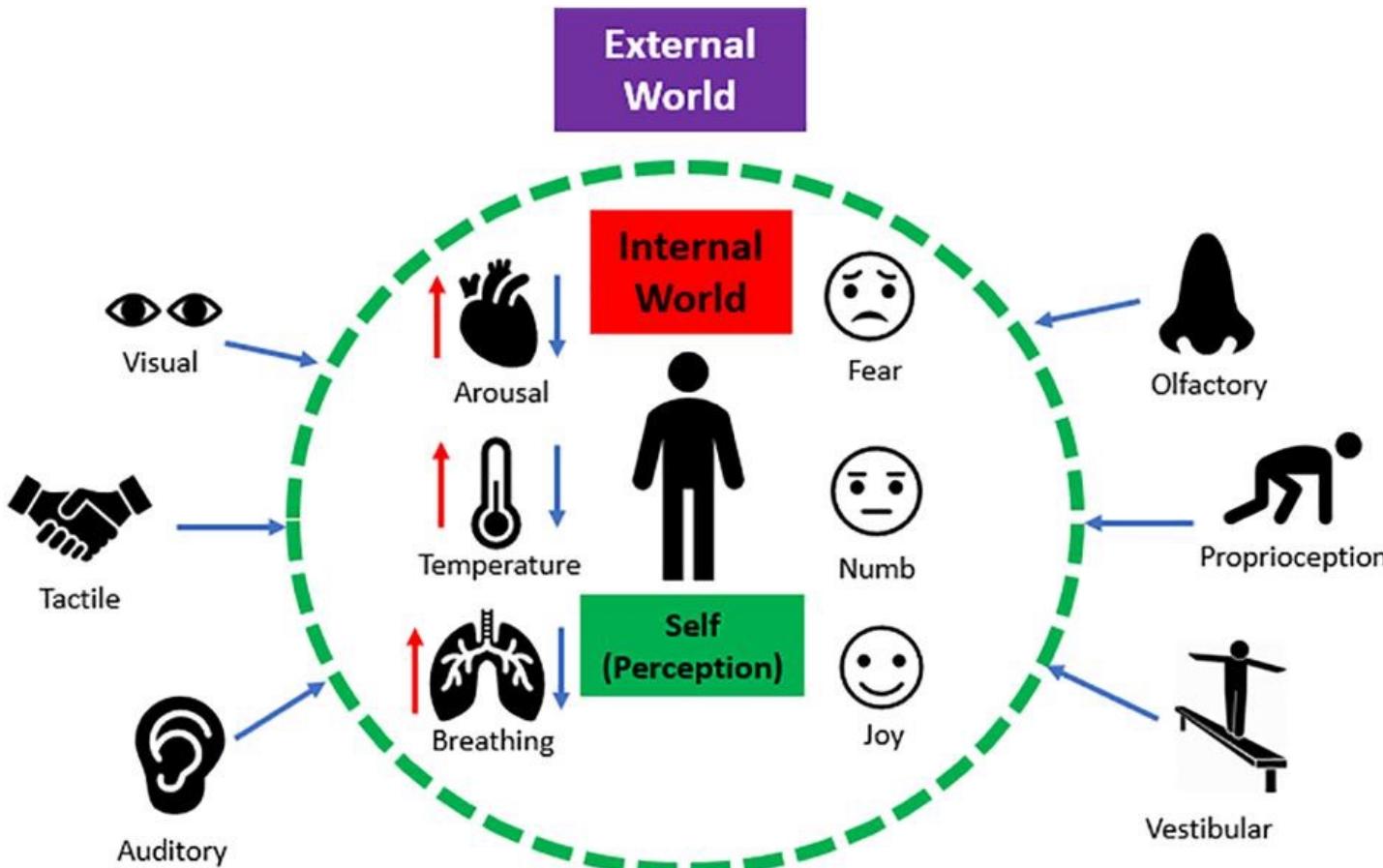
Why does the mind occasionally function so ineffectively in the world?

Autopilot to Controlled response and failure, e.g. haste decision making often leads to Err, trade off – accuracy for speed and versatilities.

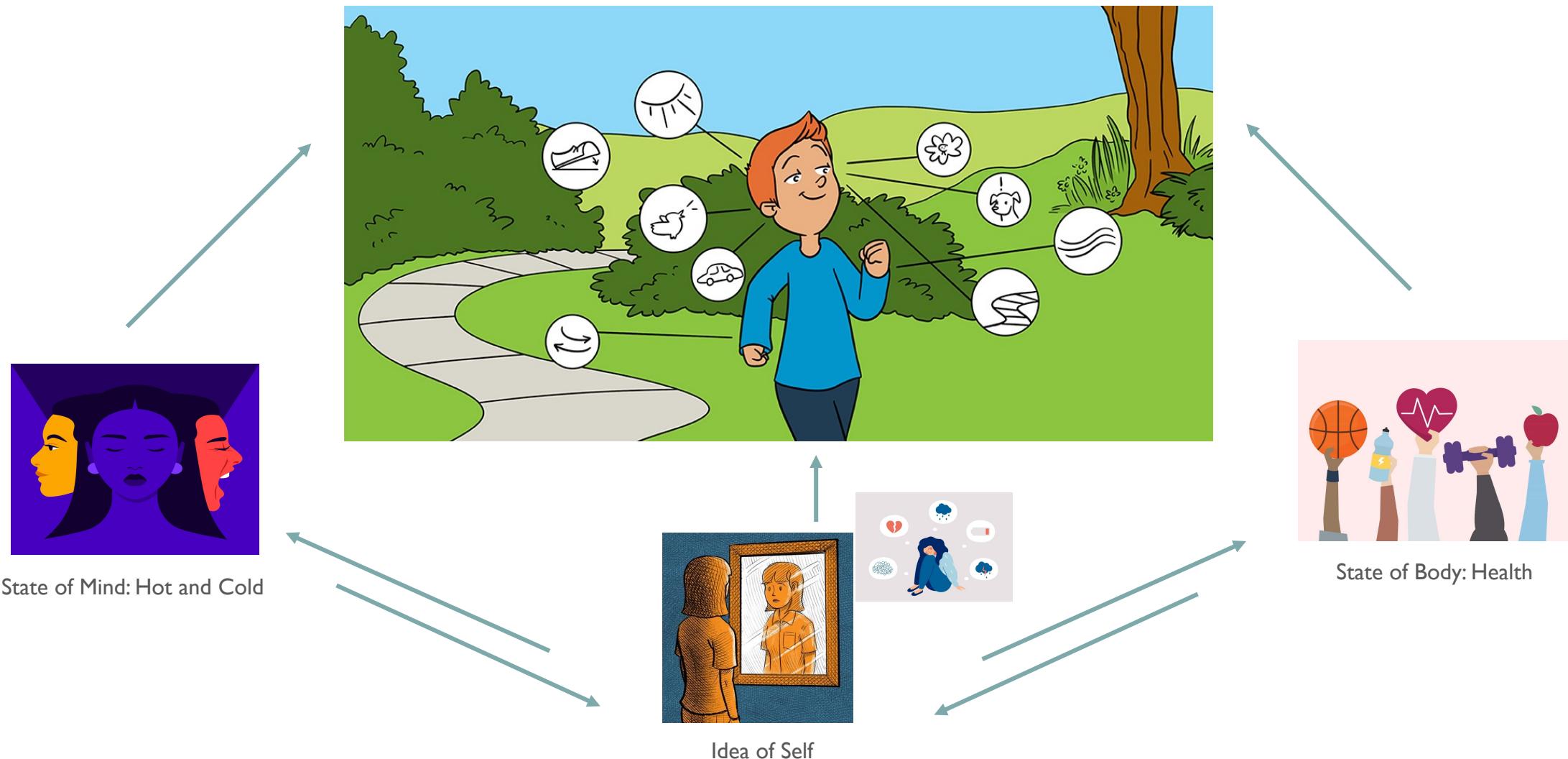
- William James – “Mind’s mistakes are as instructive as they are intriguing”.
- “Things that are whole and unbroken hum along nicely and do their jobs while leaving no clue about how do they work.”
- Keep in mind – “Breakdowns and Errors are not just about destructions and failure, they are pathways to knowledge. Understanding lapses, errors, mistakes, and the occasionally puzzling nature of human behaviour provide a vantage operations of mental processes and behaviour.”



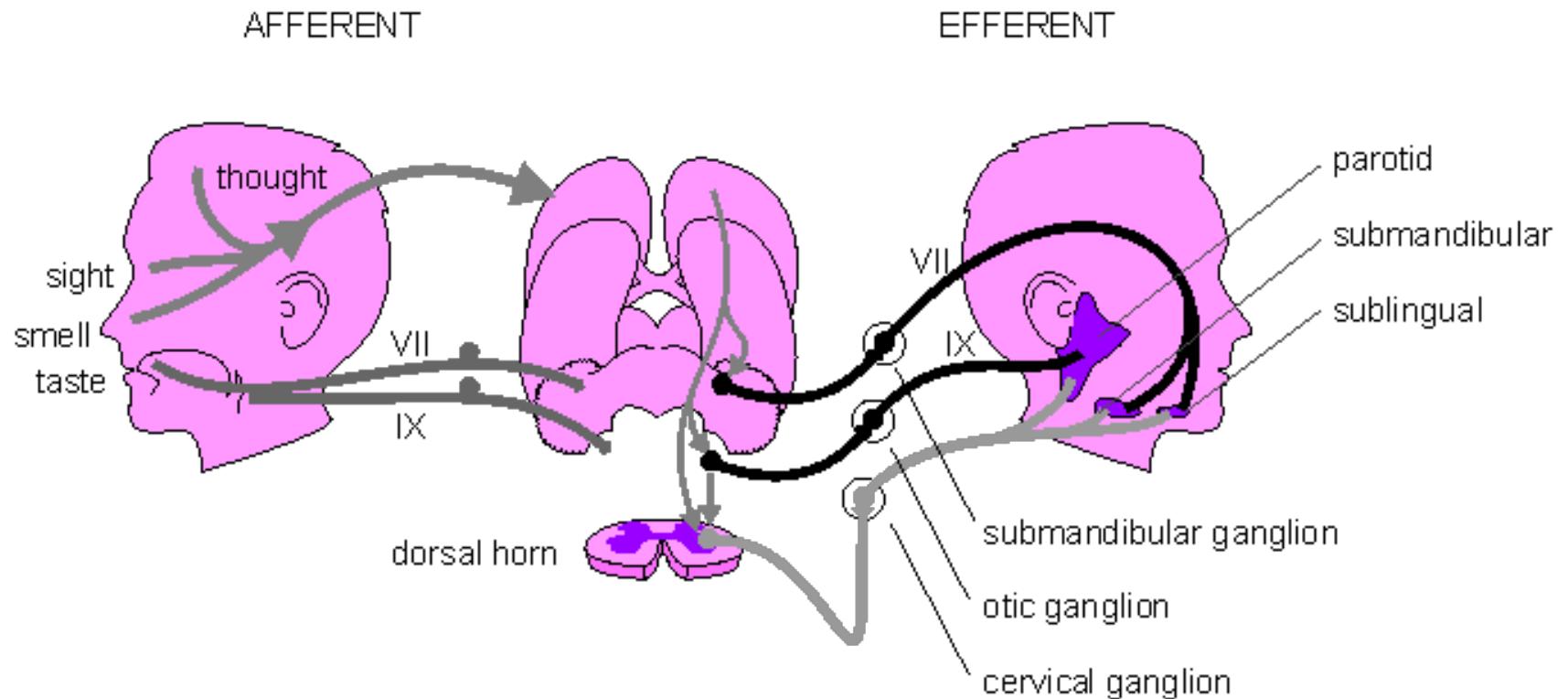
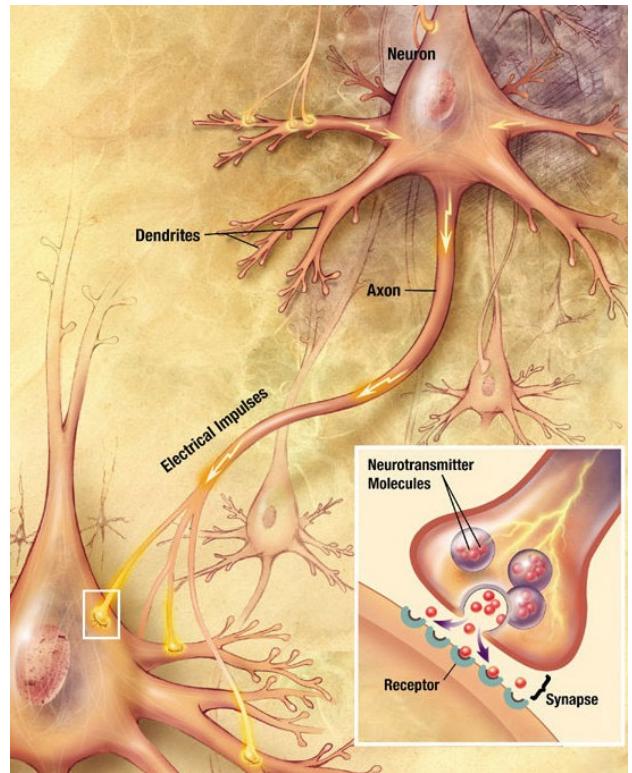
REALITY as experienced by communication between internal and external world



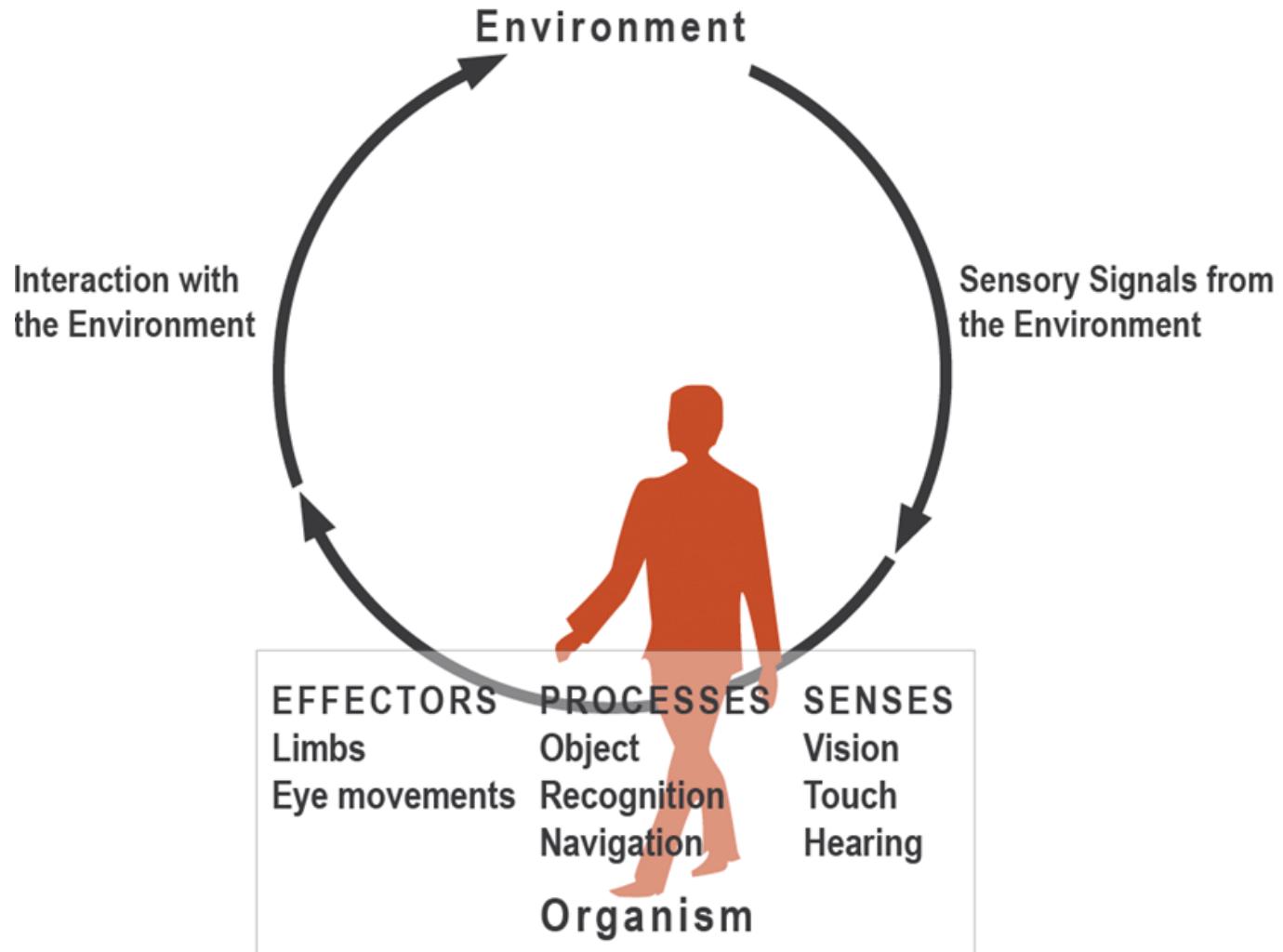
REALITY as experienced by communication between internal and external world



Neuron - Afferent-Efferent Nerves



Perception-Action Cycle



Activity II: Experience Alternative Modality

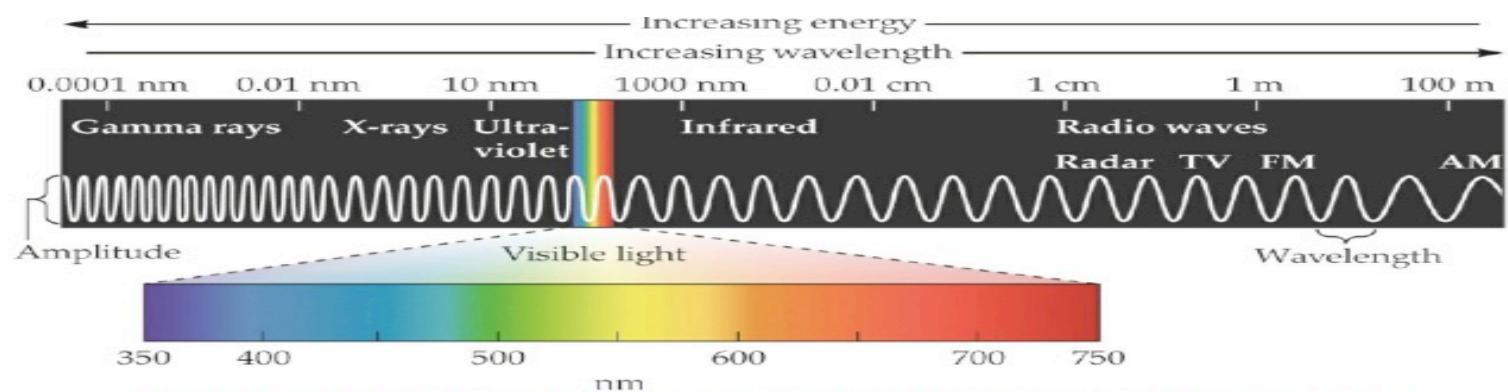


PRECAUTION: DO THIS ACTIVITY UNDER SUPERVISION – WITH THE HELP OF SOMEONE

1. Close your eyes and try to pour liquid (normal temperature) in a cup of different size and material – observe the strategies you come up to achieve the perfection with which you perform these tasks otherwise
2. Close your eyes and try to walk around and see how you figure out the obstacles around, estimate direction and distance, and most importantly, the sense of balance.

Reality is
Subjective





Humans detect a tiny fraction of the information carried on the electromagnetic spectrum. The rainbow-colored slice marked "visible light" is made of the same stuff as the rest of the spectrum, but it's the only part for which we come equipped with biological receptors.



Bluebottle butterfly: 15 types of photoreceptors, responding to UV, V, B, B-G, G, R; has five times as many color photo-Receptors as we do



Plumage Bird – UV rays -



Phyton

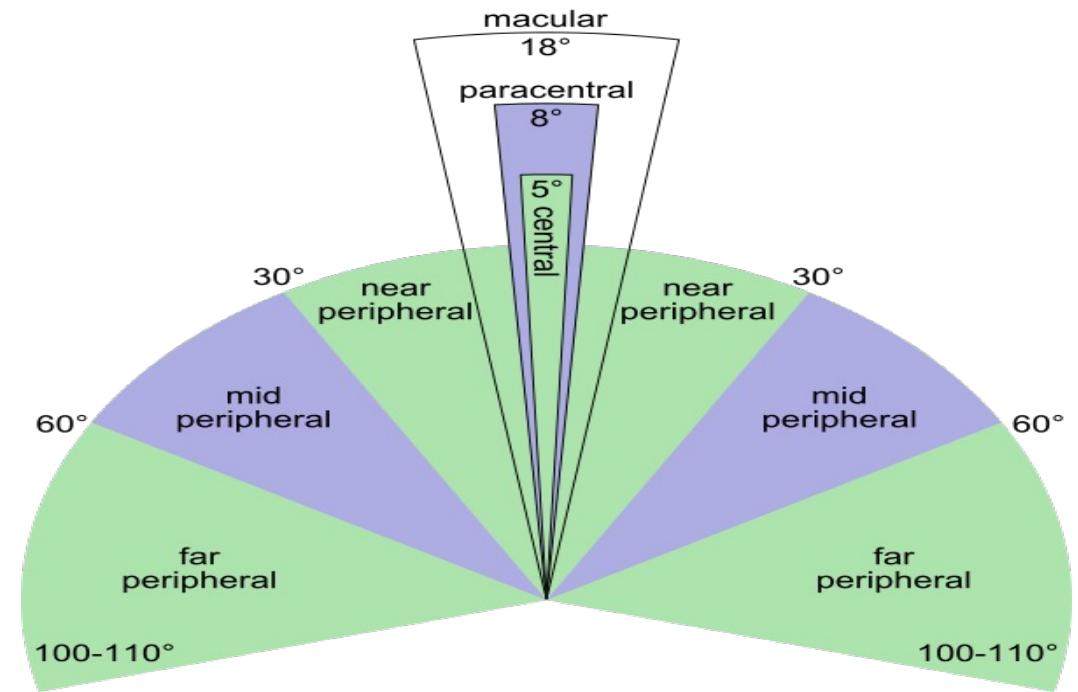
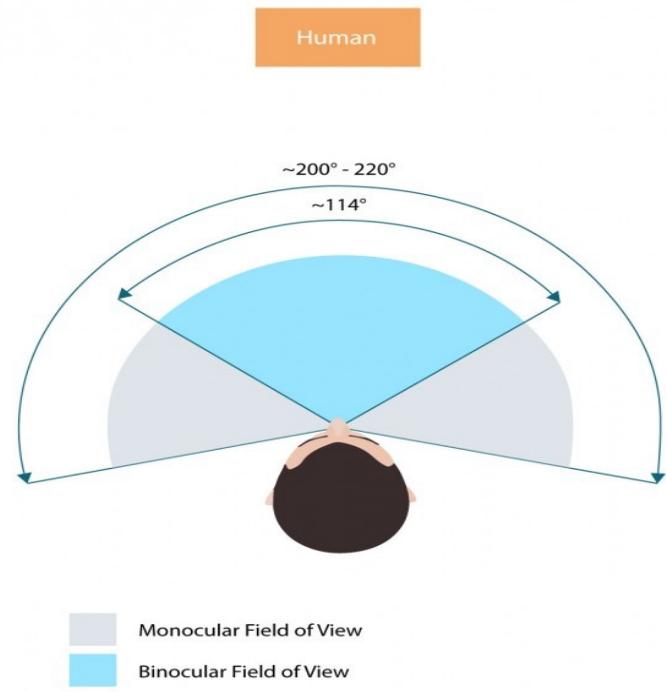
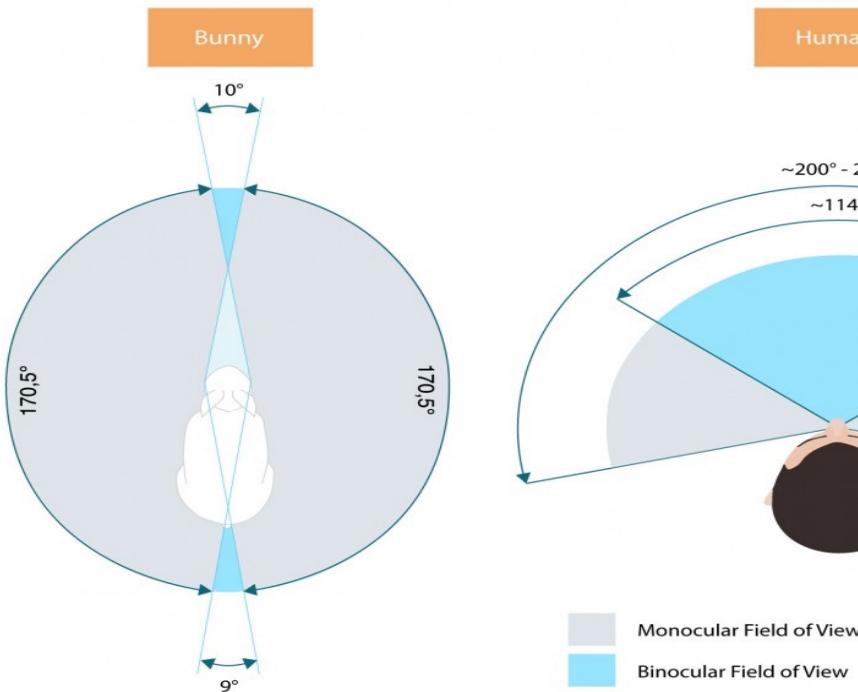


Bullfrog



Infrared ray



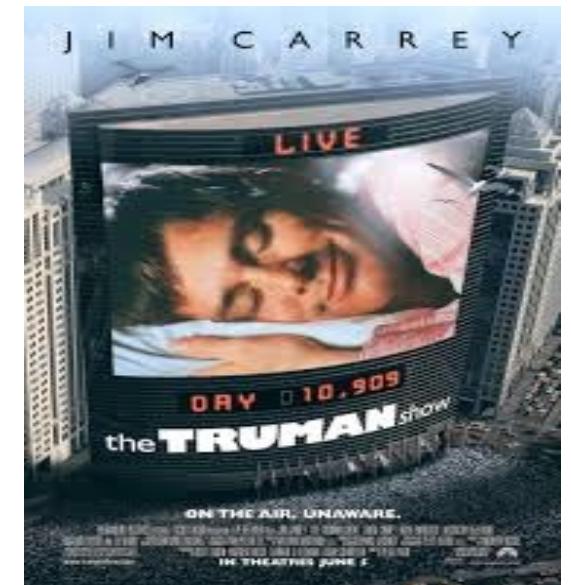


UMWELT

Umwelt was introduced by Jakob von Uexküll in 1909, a German biologist.

Umwelt refers to ‘person’s engagement with the world immediately around him/her/they’ by German Philosopher Martin Heidegger. The world as it experienced by a particular organism – by dictionary.

Different animals in the same ecosystem pick up on different environmental signals. In the blind and deaf world of the tick, the important signals are temperature and the odor of butyric acid. For the black ghost knifefish, it's electrical fields. For the echolocating bat, it's air-compression waves. The small subset of the world that an animal is able to detect is its *umwelt*. By David Eagleman, American neuroscientist.





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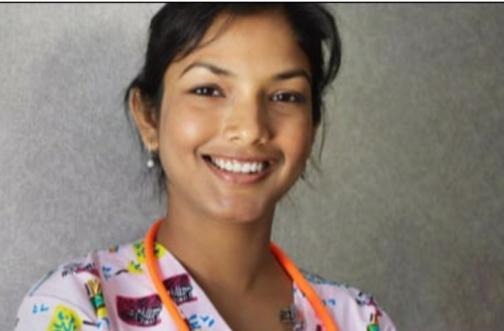
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India passes five million Covid cases amid spike

It is the world's second-highest caseload, amid reports of intensive care beds and oxygen shortages.

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Trump denies minimising Covid risk: I 'up-played' it

The president said in an interview earlier this year he minimised the virus's severity to avoid panic.

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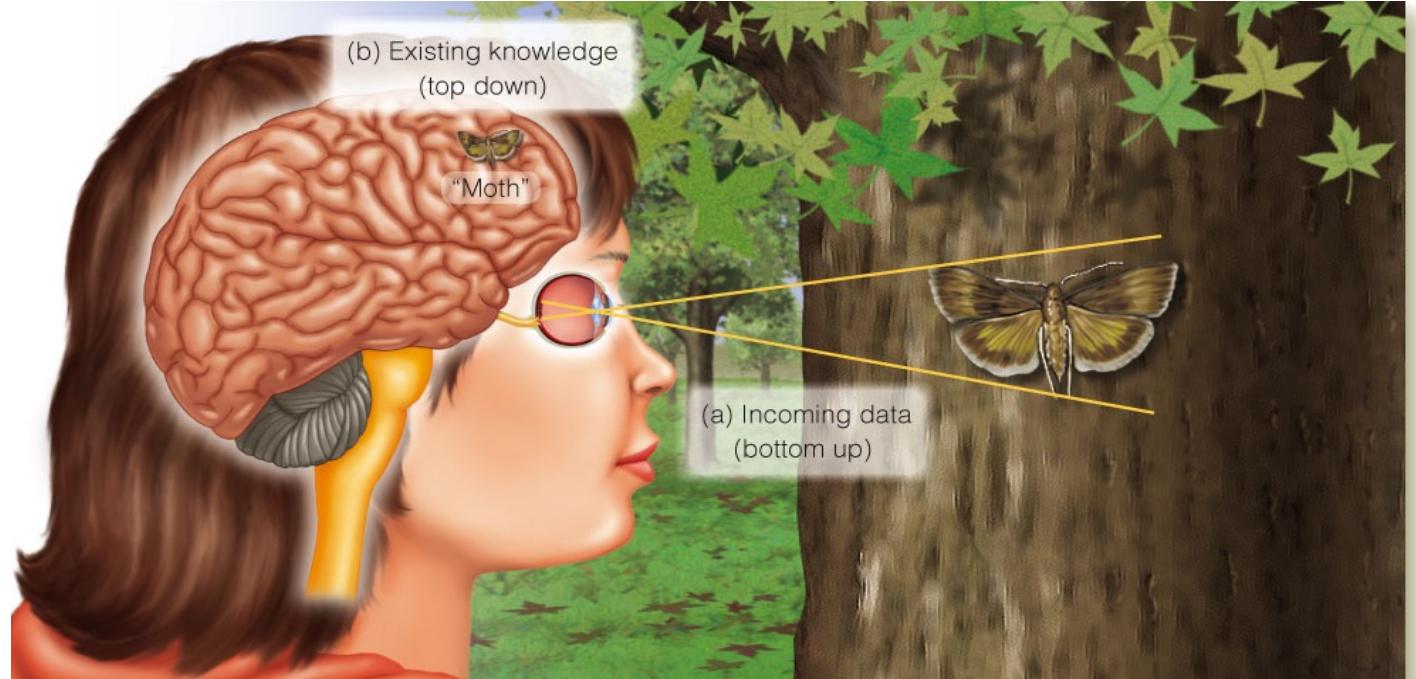
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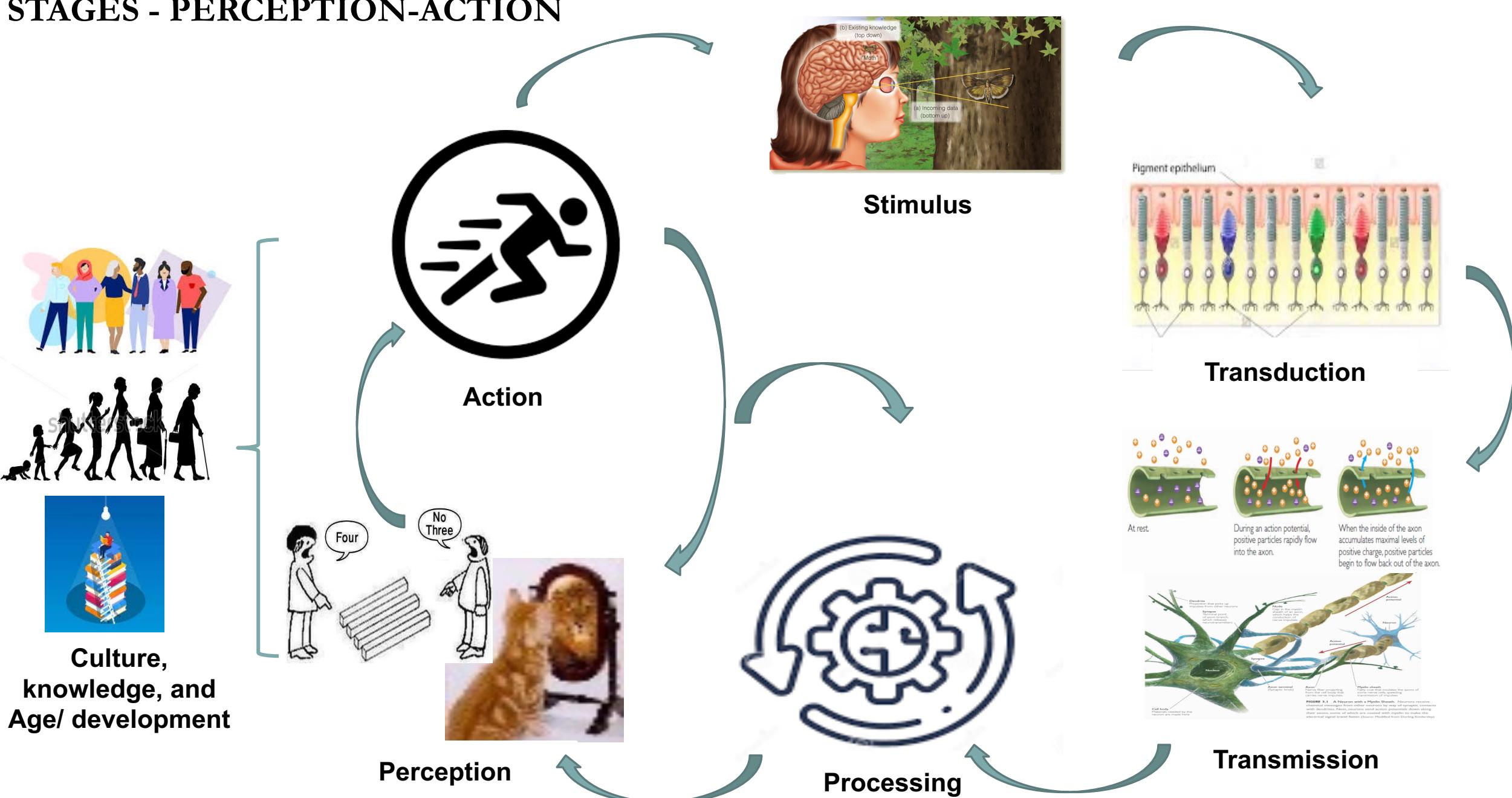


PERCEPTION



- The brain's interpretation of raw sensory inputs
- The organization, identification, and interpretation of a sensation in order to form a mental representations

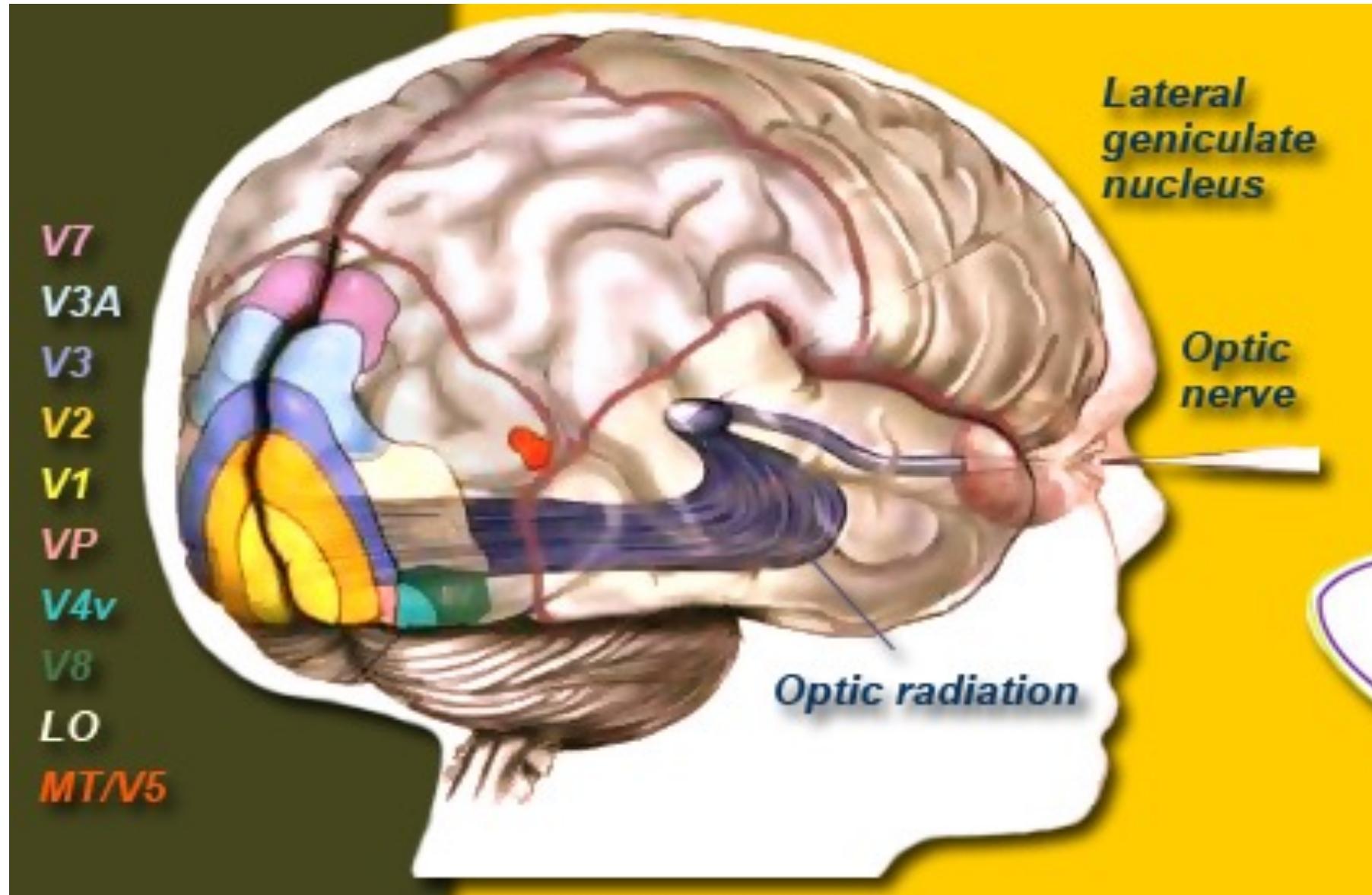
STAGES - PERCEPTION-ACTION



PROCESSING - HOW DO WE DO A SIMPLE DETECTION, IDENTIFICATION, & RECOGNITION TASK?



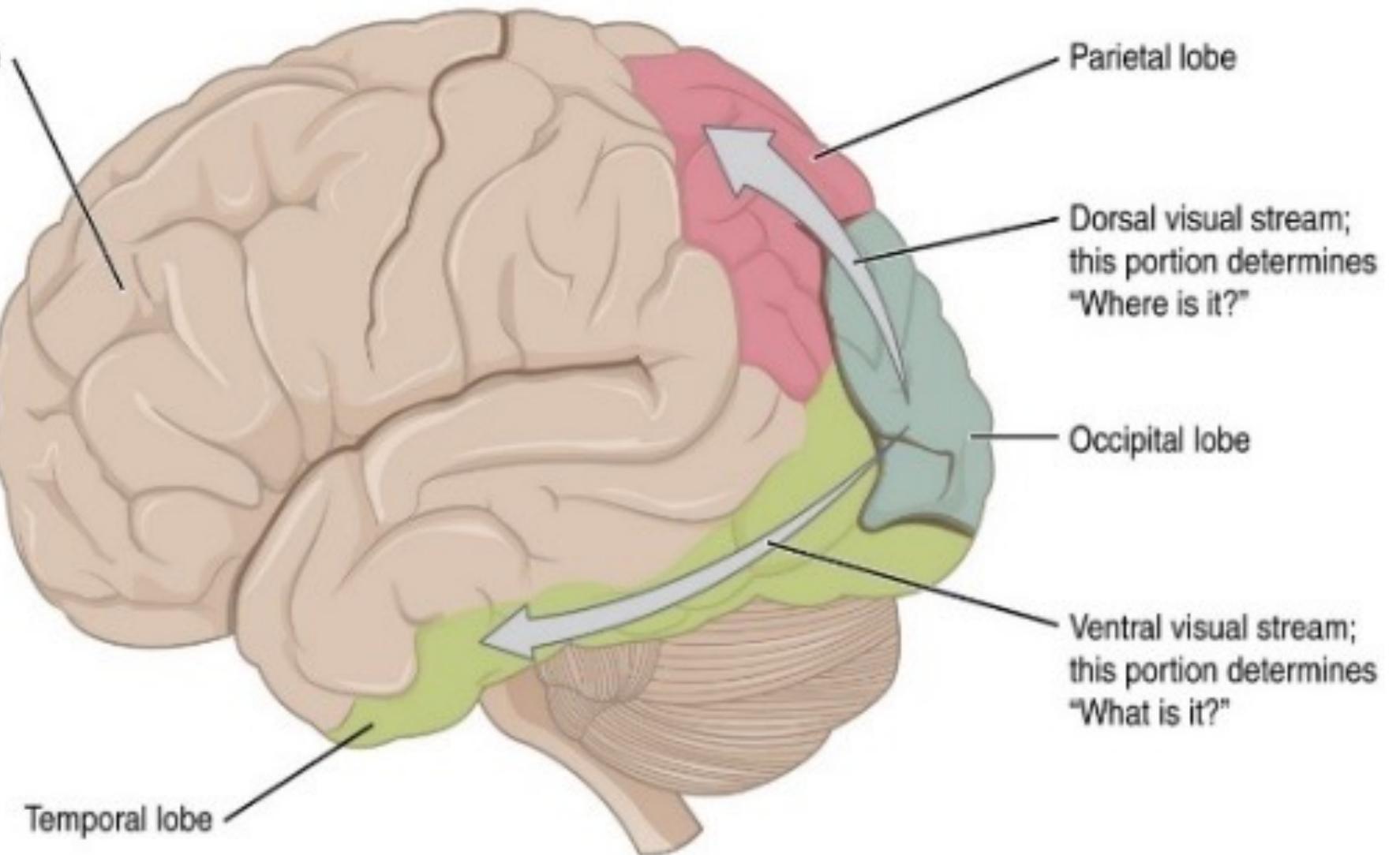
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PROCESSING - FOUR LOBES IN BRAIN – HARMONY IN AUTONOMY AND INTERGRATION



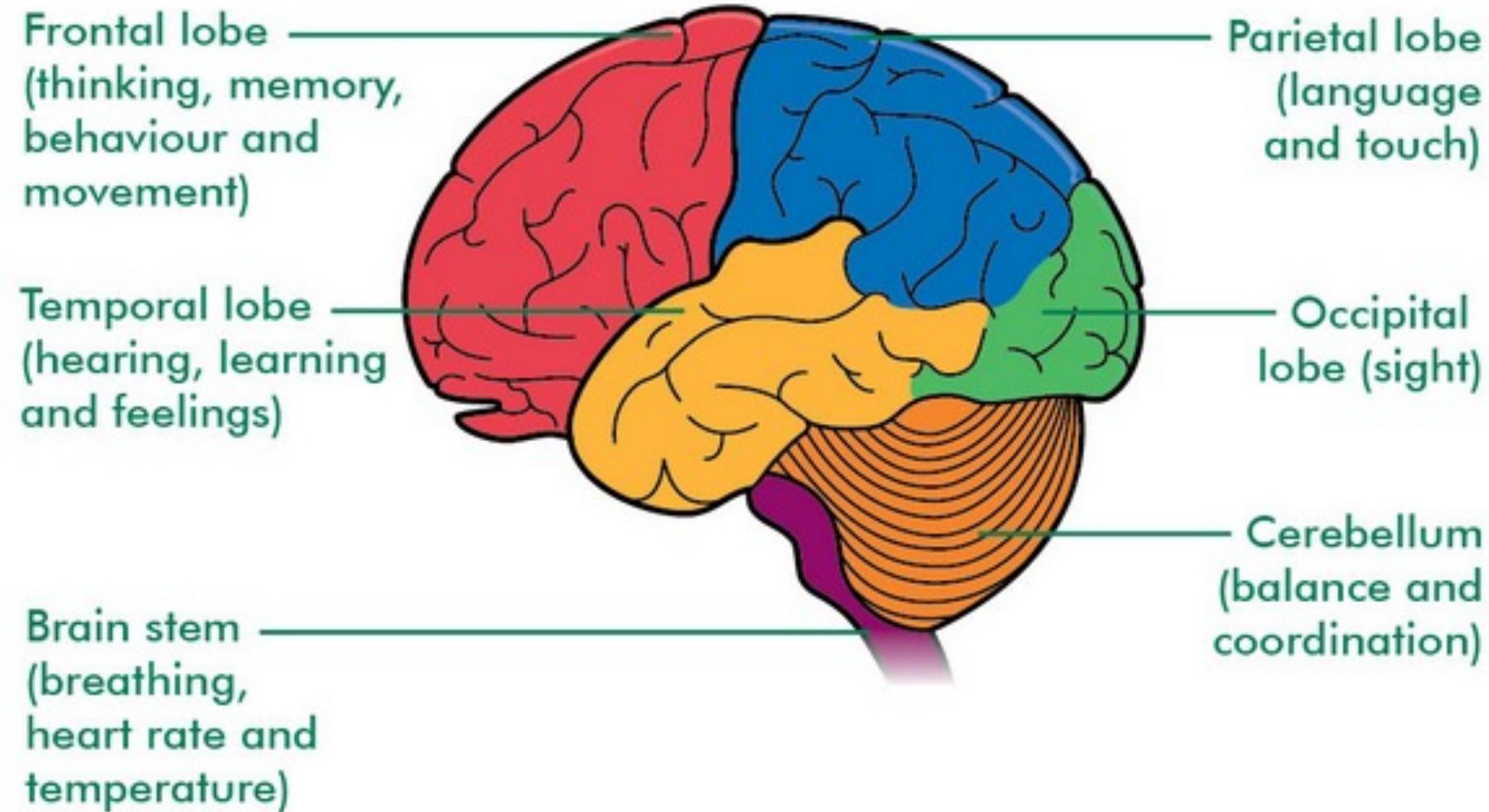
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PROCESSING - FOUR LOBES IN BRAIN – HARMONY IN AUTONOMY AND INTERGRATION



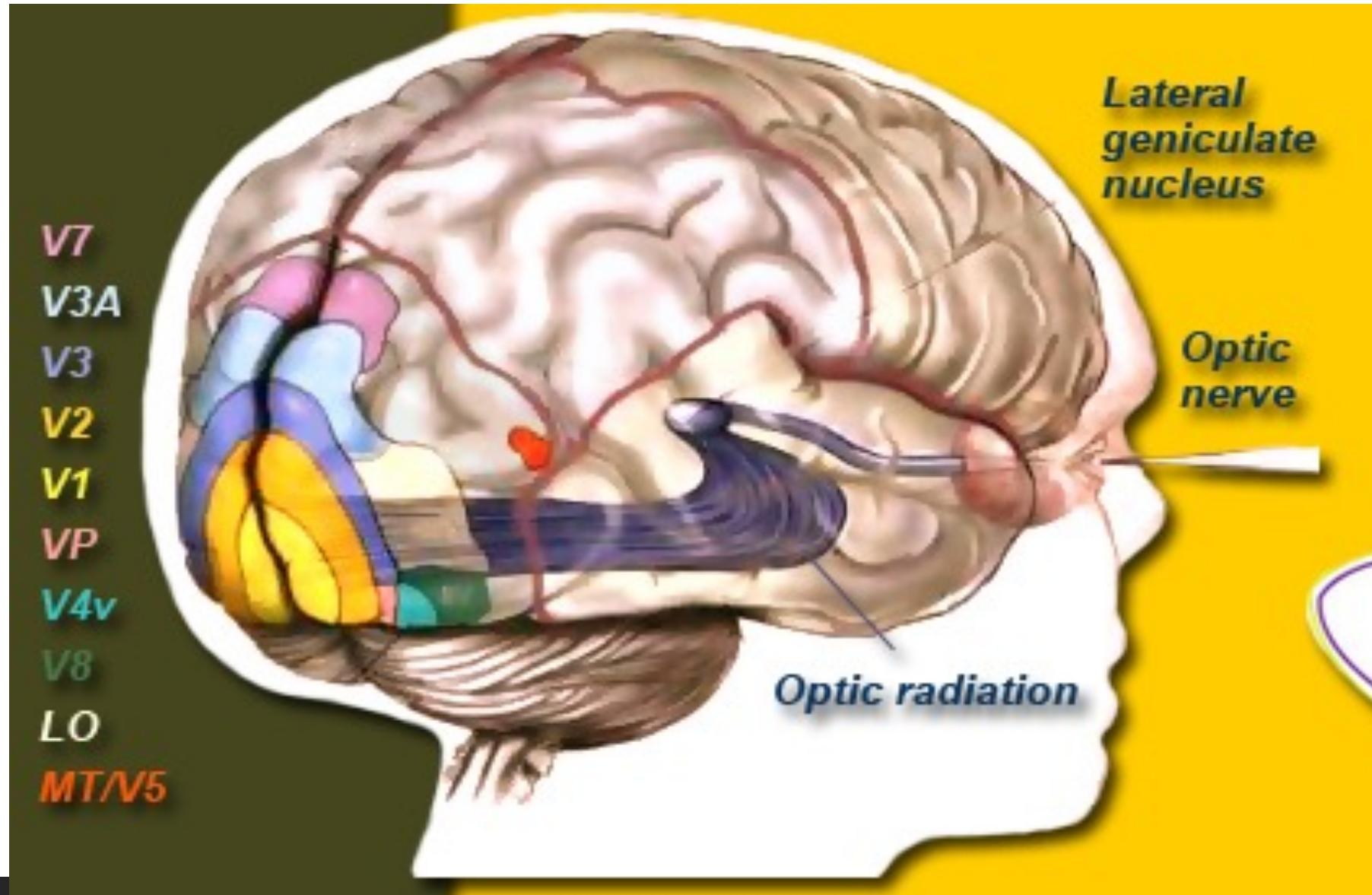
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PROCESSIGN - HOW DO WE DO A SIMPLE DETECTION, IDENTIFICATION, & RECOGNITION TASK?



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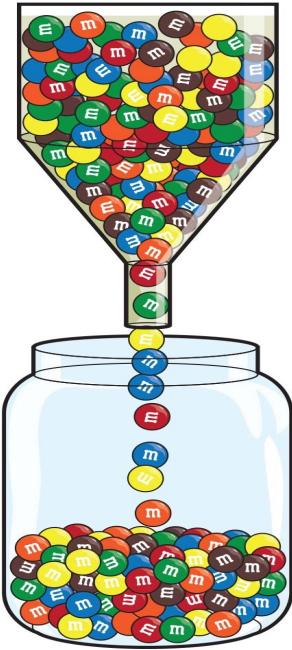
ATTENTION



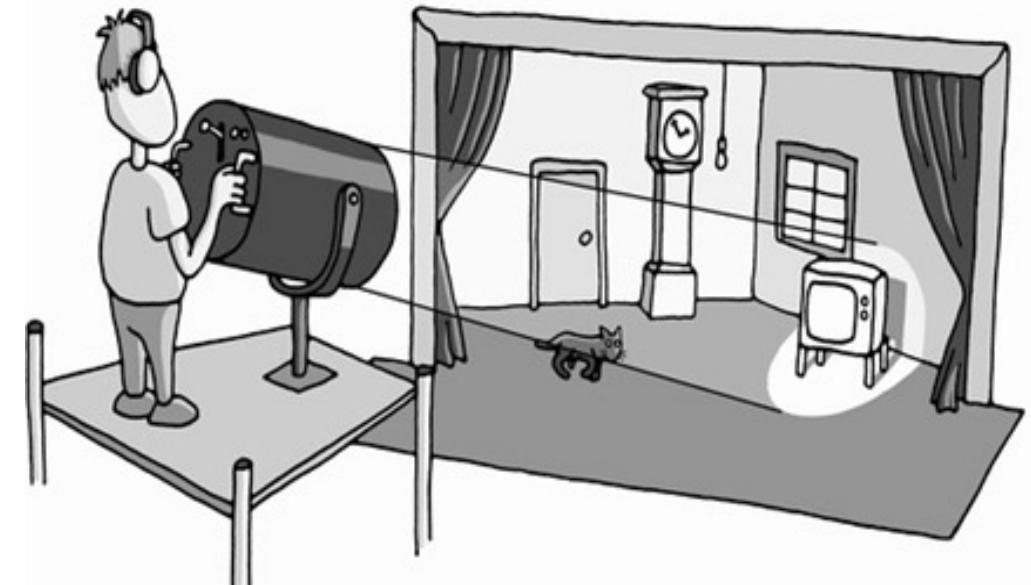
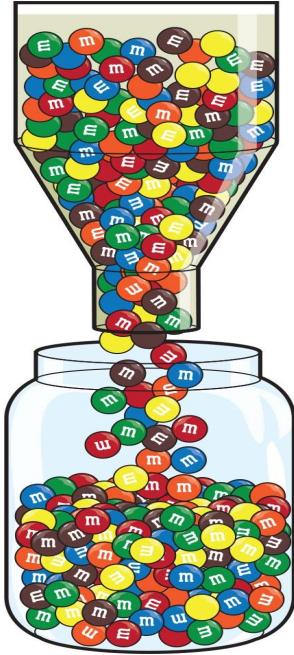
- An ability to selectively focus on relevant information while ignoring the irrelevant information and enable selective focus
- Work as a SPOTLIGHT – metaphor used to describe attention

What is Attention?

Selection, Filter, and Focus



Selection and Bottleneck



Selective Focus

Enable focus on relevant information selectively while ignoring irrelevant information

What is Attention?

Shifting, Alternating, and Dividing – Dual Task



Central Attention / Resource

- Enable dividing your attention to more than one task - multi-tasking / dual task
- We have multiple resources to juggle between tasks
- The efficiency of juggling between task depends on practice, task complexity, stimulus features, task demand, sharing of stimulus features / actions between two tasks

- Inattention Blindness – Failure to perceive the object that are not the focus of attention



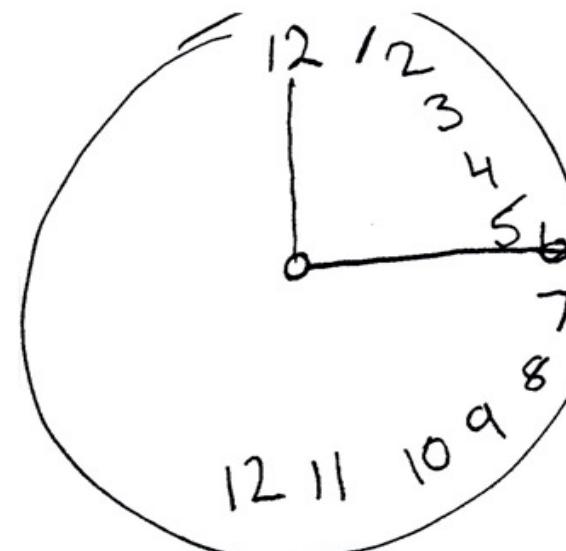
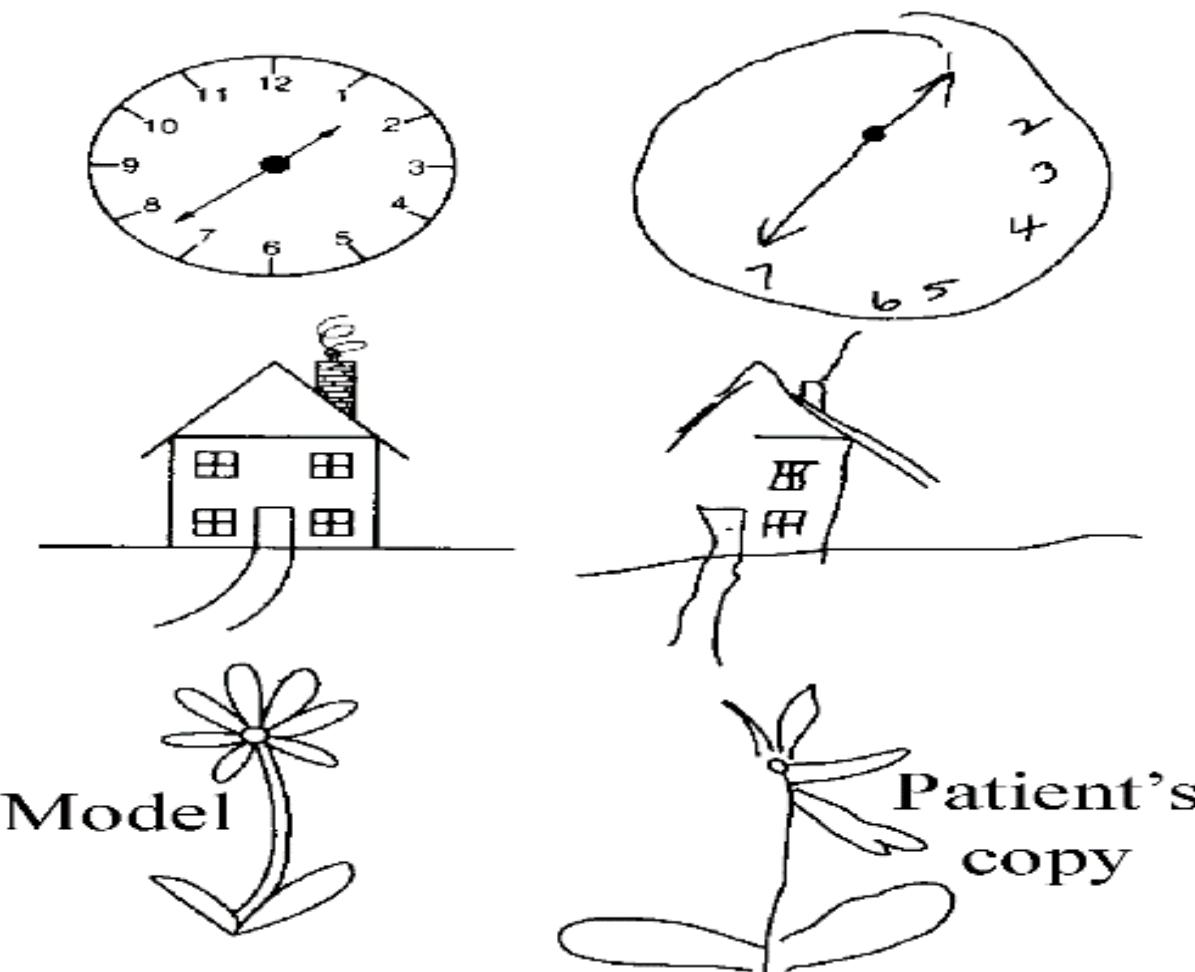
- Change Blindness – failure to detect changes to the visual details of a scene



Is attention always required? – could result in Illusory Conjunction

Subliminal Perception – thought or behavior that is influenced by stimuli that a person cannot consciously report perceiving

Attention Problem - Visual Neglect / Hemi Neglect



Visual Neglect / Hemi Neglect



- Patients with right parietal damage show neglect to the left visual field and they ignore to even listen to the speaker from the left side, miss to eat or explore the left side if using touch.
- The patients also show problems in disengaging attention from one side to another
- Patients with parietal lobe lesions have shown a problem with imagery and their contralateral side memory performance – known as representational neglect

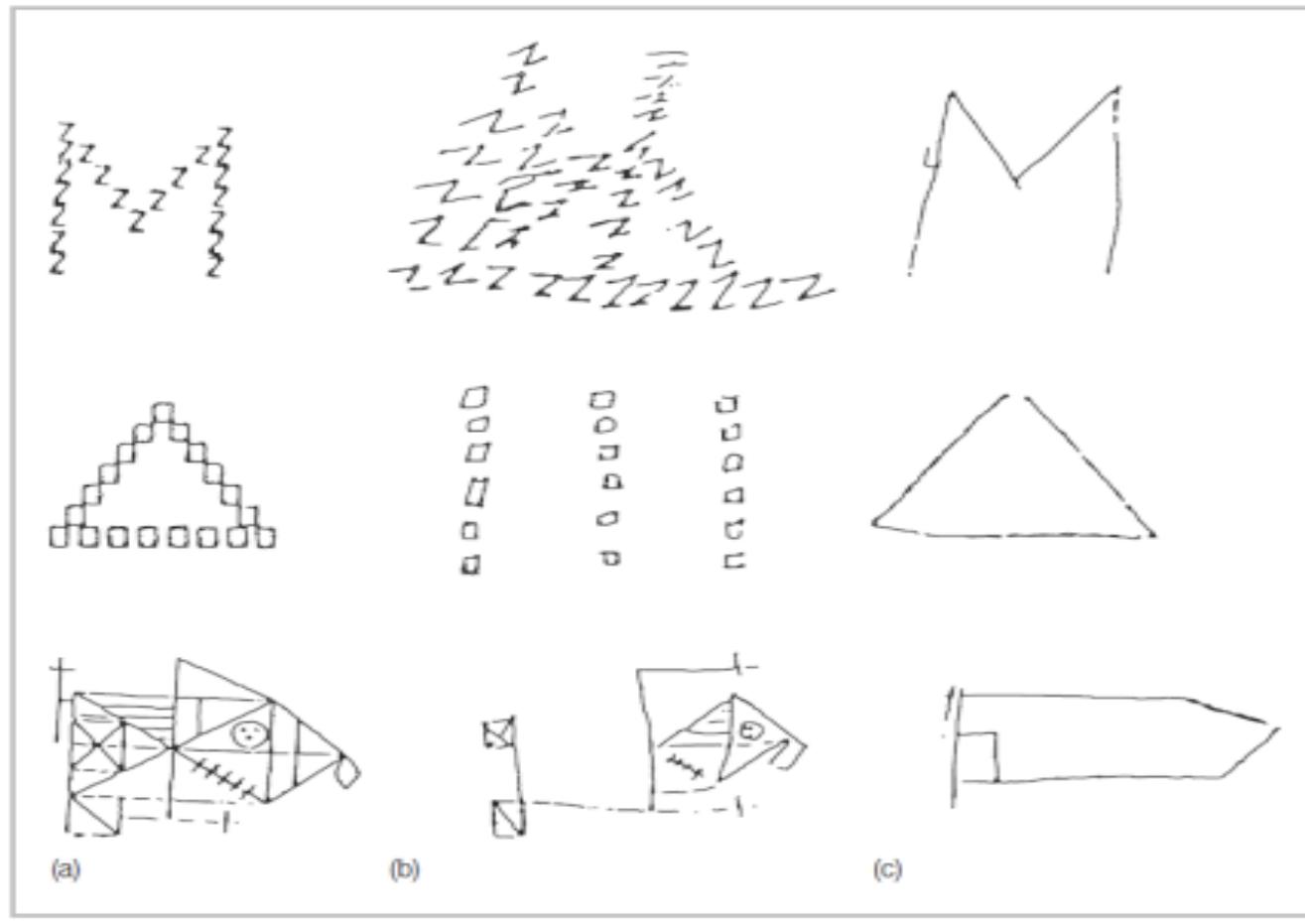
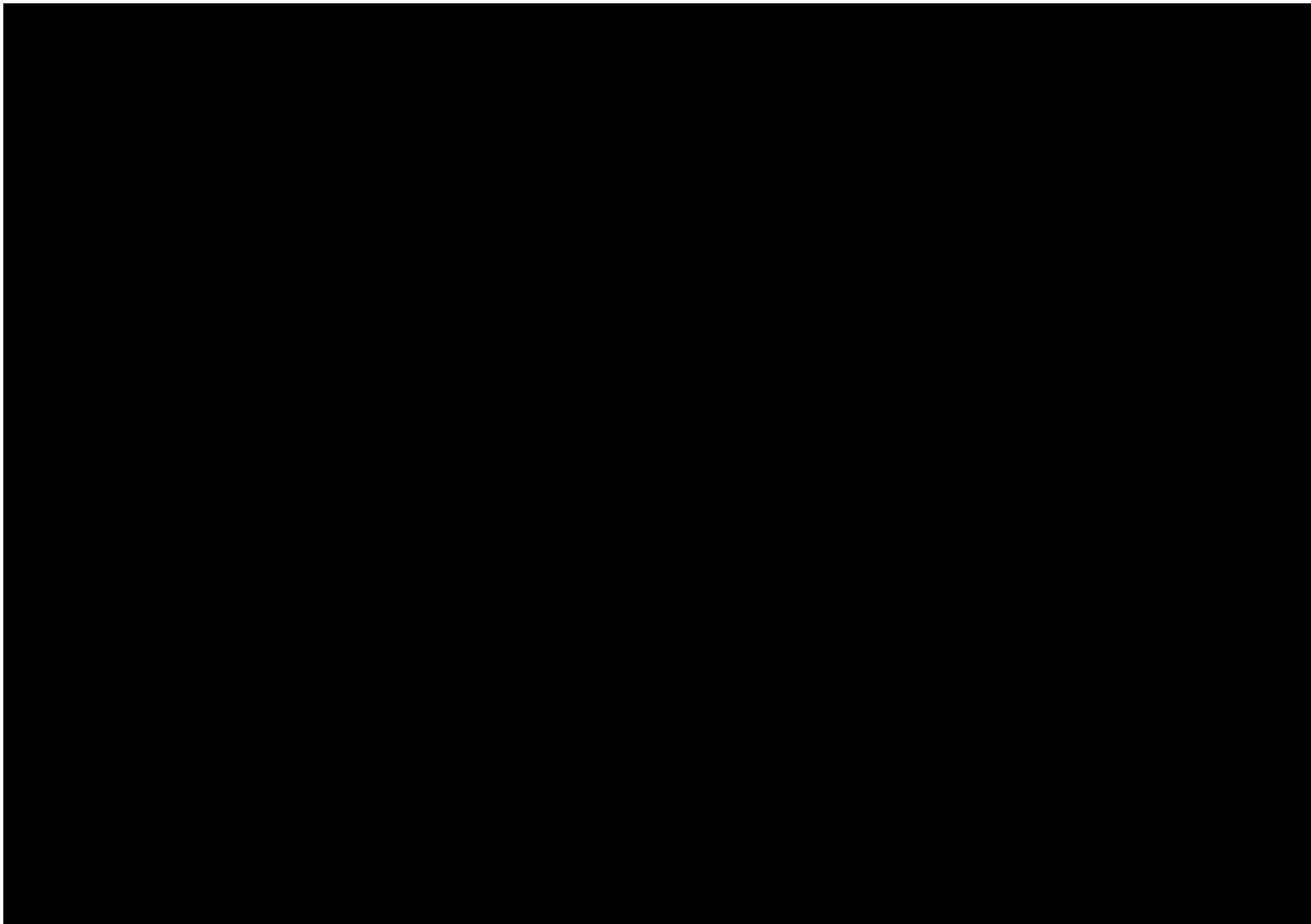


FIGURE 3.18 (a) The pictures presented to patients with parietal damage. (b) Examples of drawings made by patients with right-hemisphere damage. These patients could reproduce the specific components of the picture but not their spatial configuration. (c) Examples of drawings made by patients with left-hemisphere damage. These patients could reproduce the overall configuration but not the detail. (After Robertson & Lamb, 1991. Adapted by permission of the publisher. © 1991 by *Cognitive Psychology*.)

Visual Neglect / Hemi Neglect



MEMORY



An ability to encode, store and retrieve information

Often treated as analogous to floppy, however, unfortunately its not as simple, passive and unidirectional storage as floppy. It's a lot messier, complex, and gets affected by experiences, prompters, and retrievals.



**Any
questions**