



IHS – L21

Introduction to Psychology Lecture 3

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Overview

- Recap
 - 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
 - Why does the mind occasionally function so ineffectively in the world?
 - How do we make sense of the world around us ?
 - Subjectivity of the experience of reality – modality, prior experience, etc.
- Today's session – Key Questions
 - How do we perceive and select and remember things ?

Overview



What and Why of Psychology
(roots of psychology, goals and levels of analysis, great debates, and how learning Psychology may impact our lives)



Individual Perspectives
(Cognitive, Neuroscience, and Evolutionary perspectives in understanding individual behavior)



Social and Cultural Perspectives
(What and how of social perspectives and will learn the power of situation than individual)



22-Mar-21



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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.

1h | India



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.

23m | US Election 2020



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Committed Resilient Together

Temasek Review 2020

Levenson et al. (....PDF) Show all

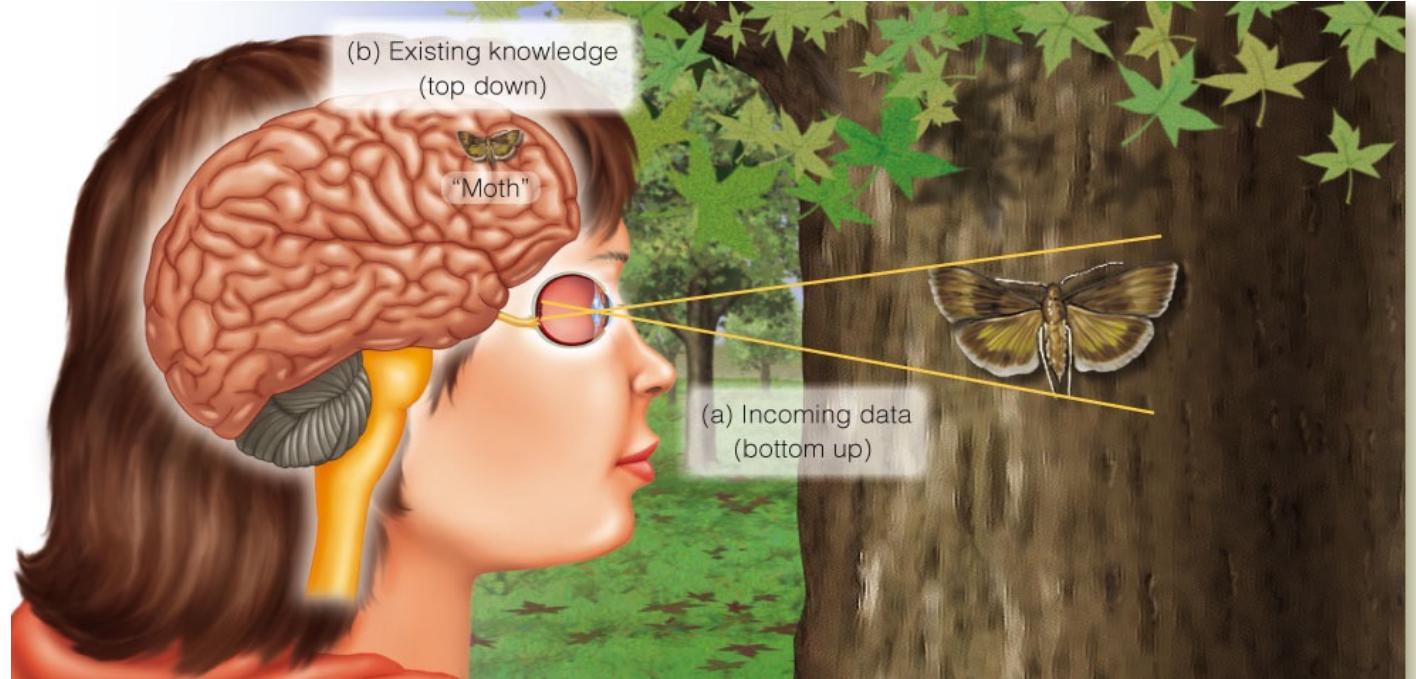
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PERCEPTION



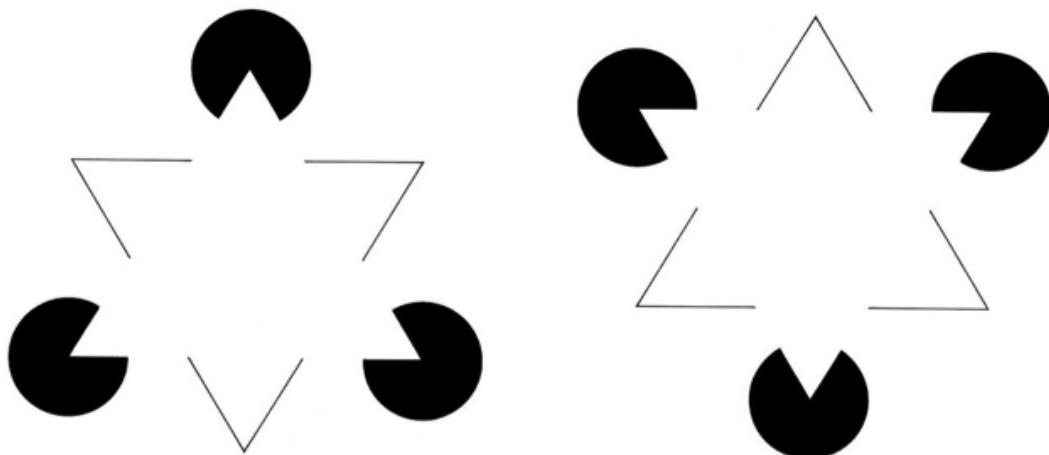
- The brain's interpretation of raw sensory inputs
- The organization, identification, and interpretation of a sensation in order to form a mental representations

What am I
seeing?



Bottom-up
processing:

taking sensory
information and
then assembling
and integrating it

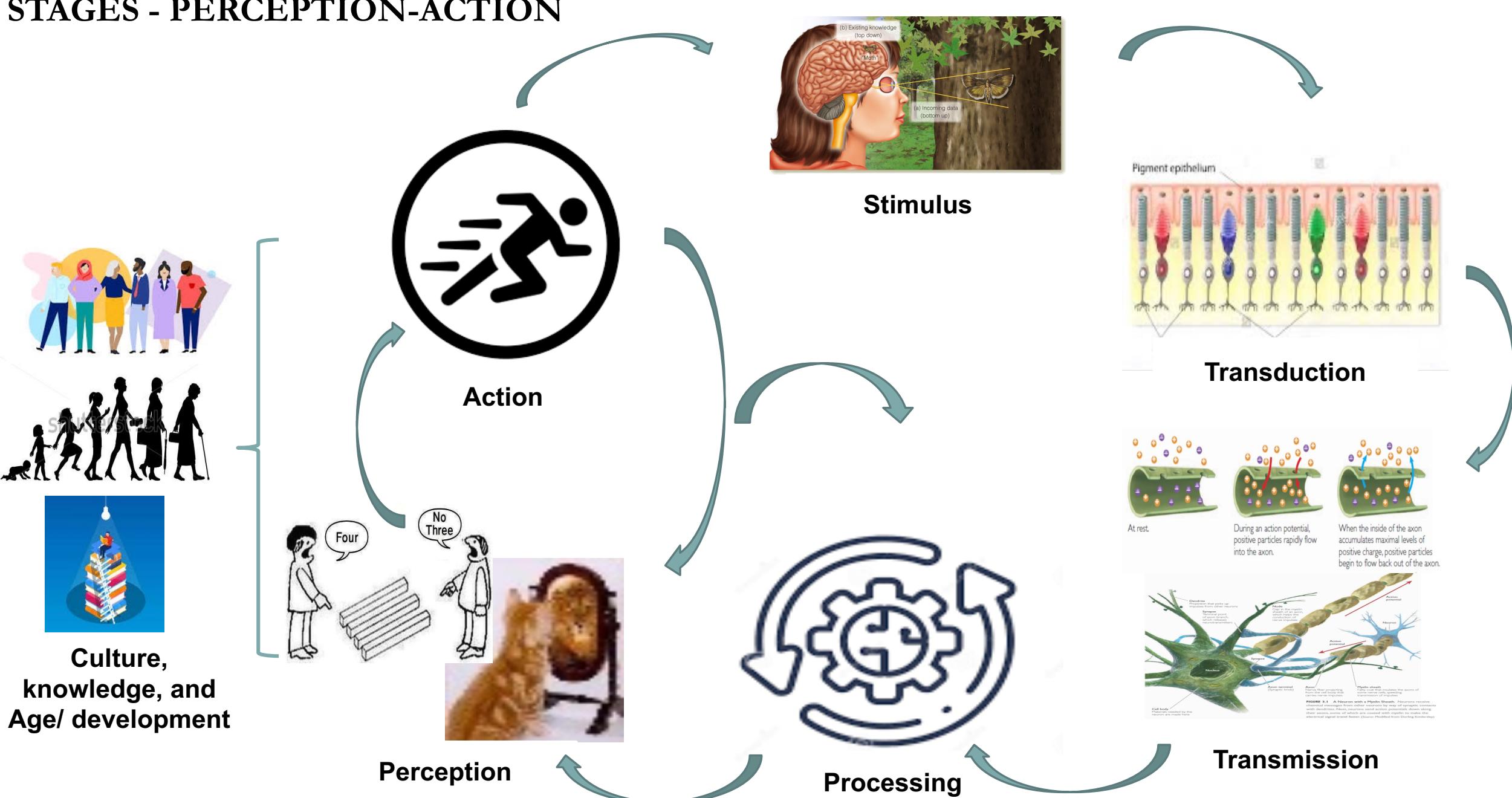


Top-down
processing:
using
models, ideas, and
expectations to
interpret sensory
information



Is that
something I've
seen before?

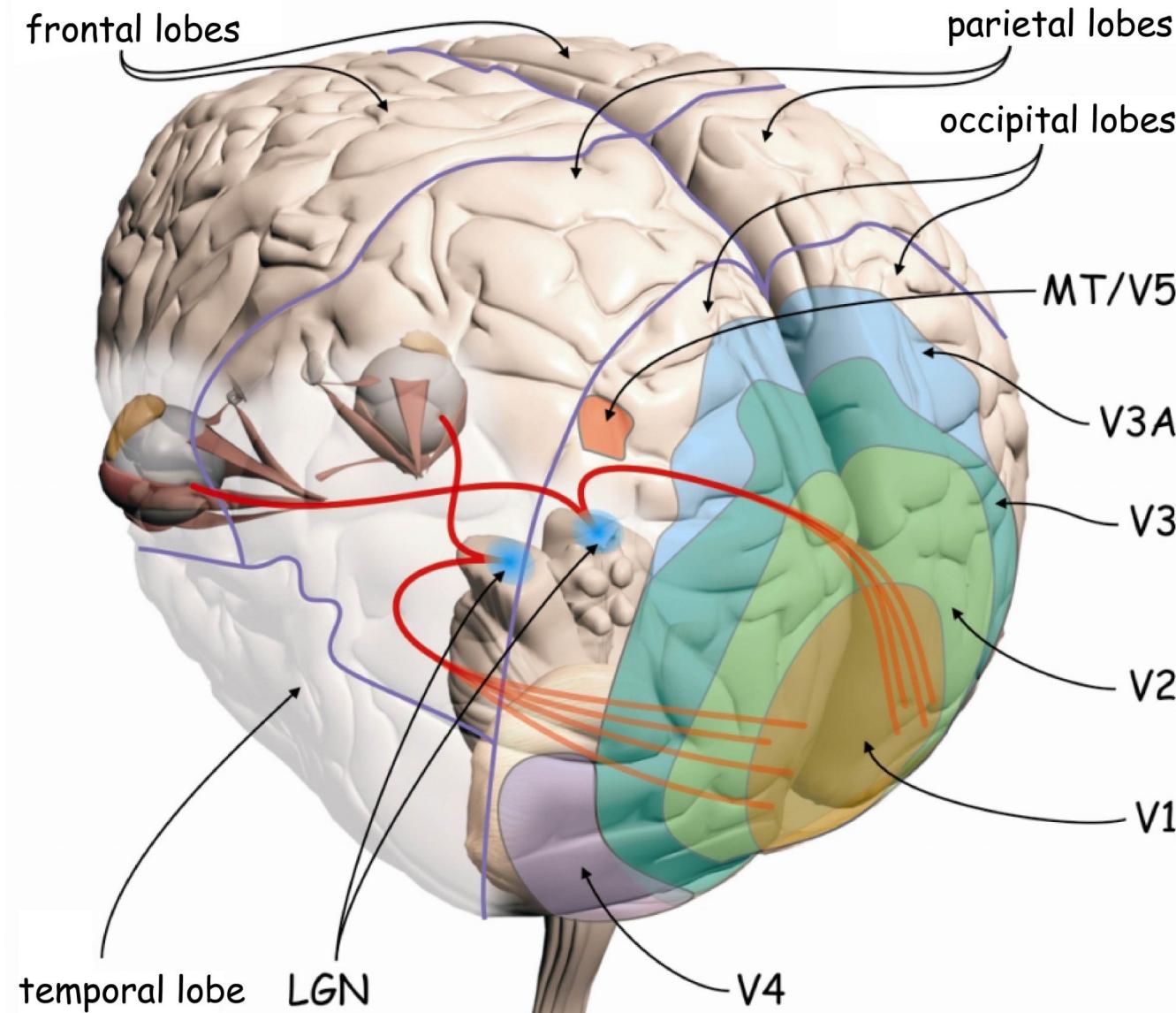
STAGES - PERCEPTION-ACTION



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



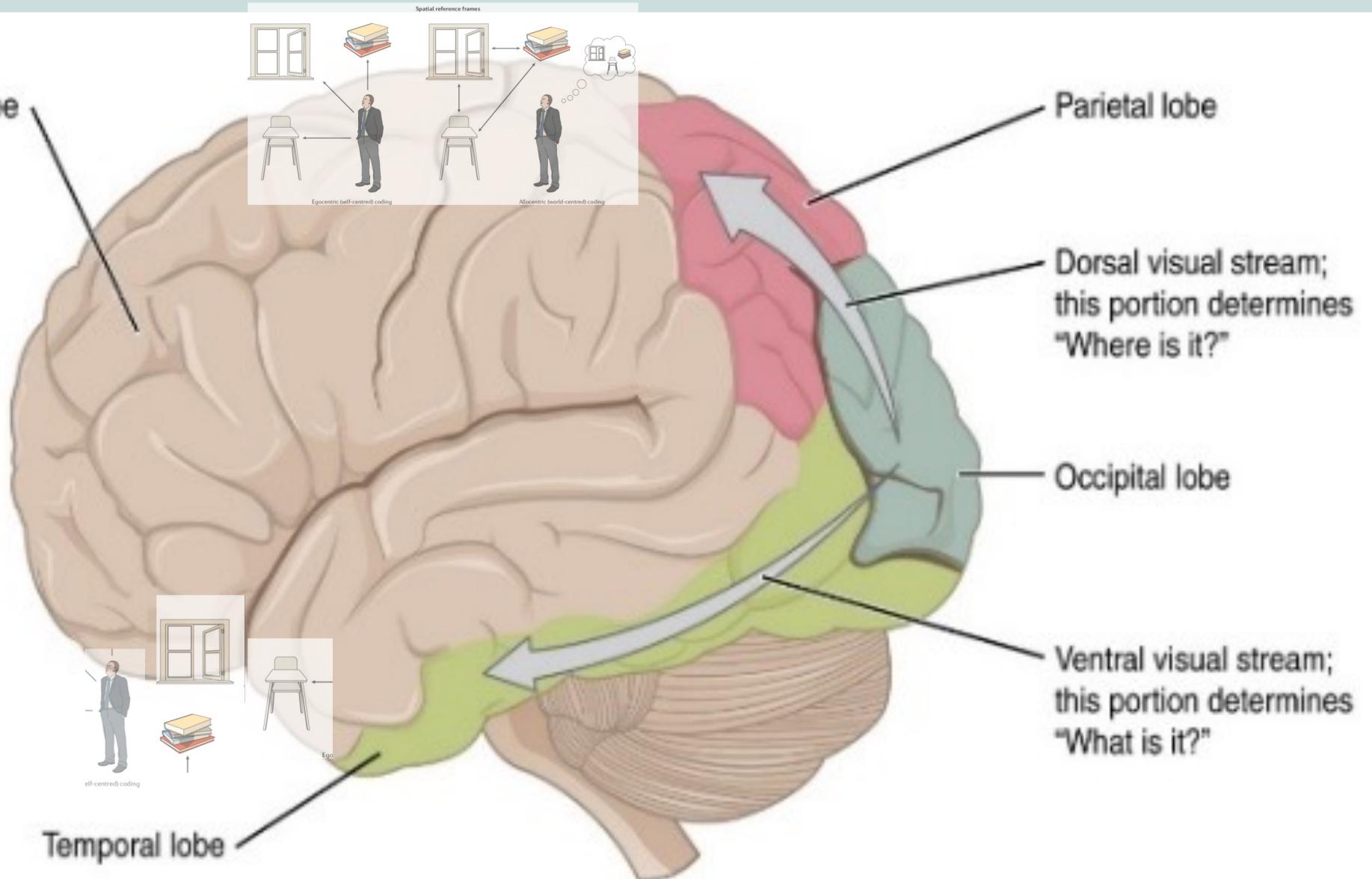
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PROCESSING - FOUR LOBES IN BRAIN – HARMONY IN AUTONOMY AND INTERGRATION



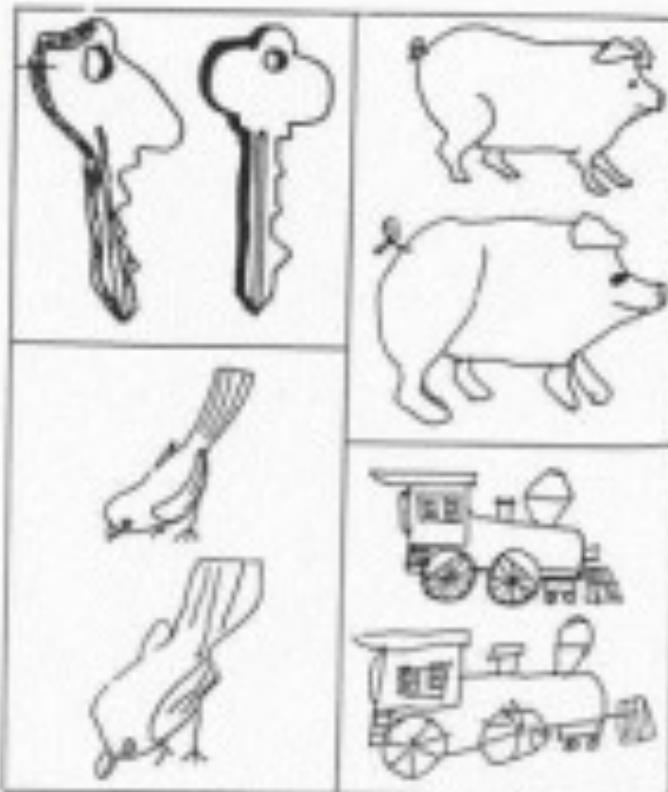
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AGNOSIA

"Could be a branch stump!"

"I don't know!"



"Could be a dog or any other animal!"

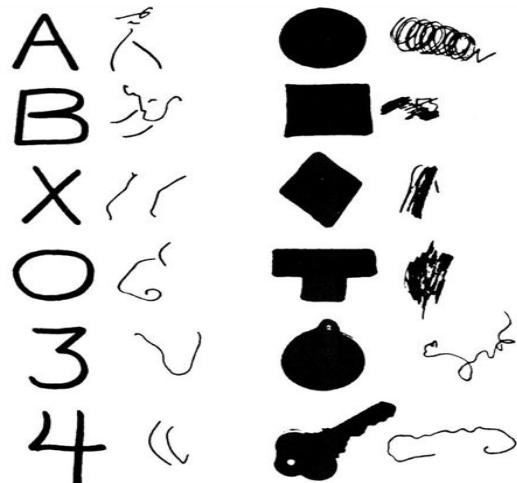
"A wagon or a car of some sort!"

Figure 1

Three drawings and the copies made by the associative agnosic patient studied by Rubens and Benson (1971). Despite being able to see the drawings well enough to copy them, the patient was unable to recognize them.

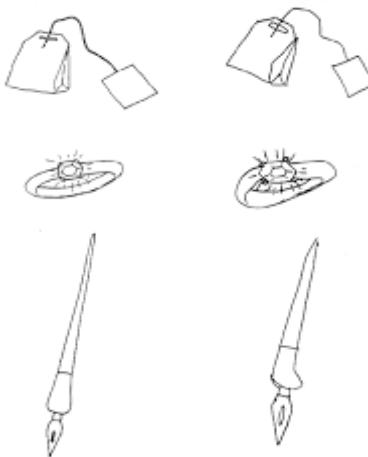
Visual Agnosia – Perceptual Problem

Agnosia: inability to recognize object using corresponding modality specific lesion. Visual Agnosia is caused by the lesion in visual information responsive regions.



Apperceptive

(Benson & Greenberg,
1969)



Associative



Prosopagnosia



Visual Agnosia – Perceptual Problem

How Agnosia is not a knowledge or memory problem?

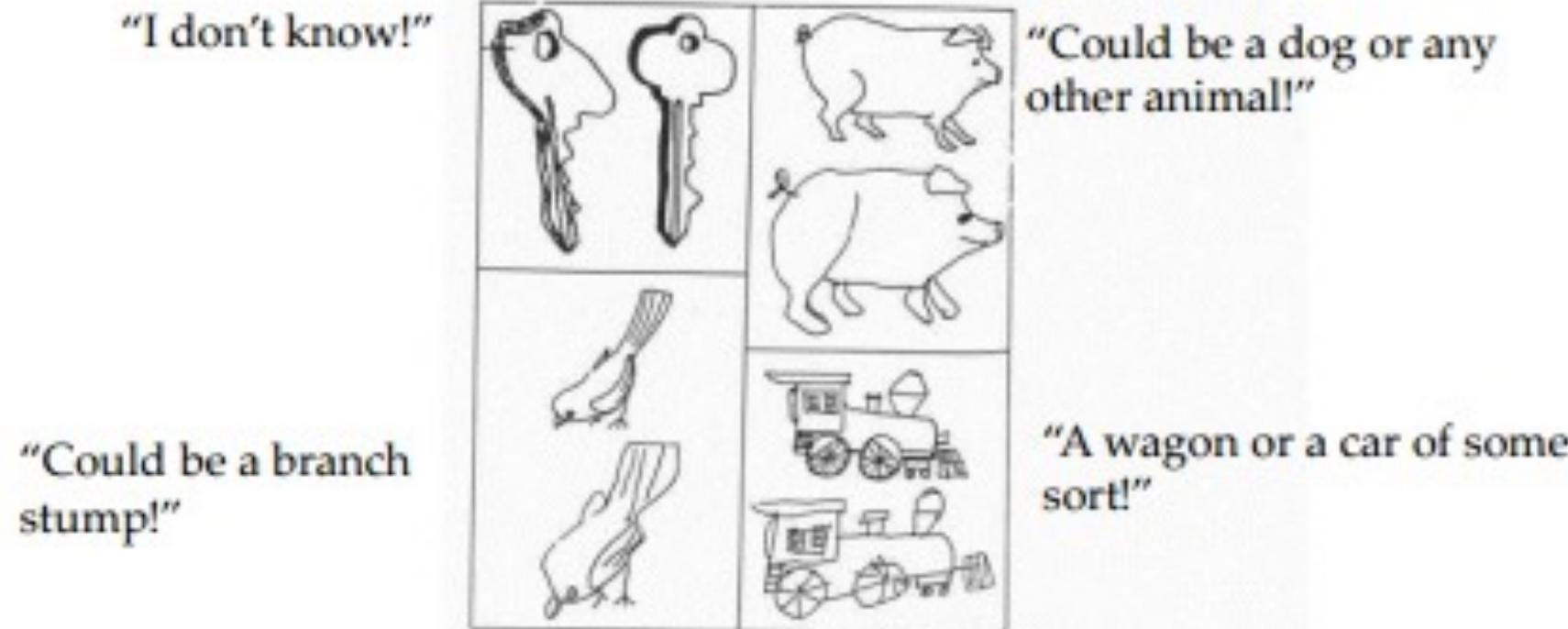
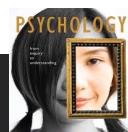


Figure 1

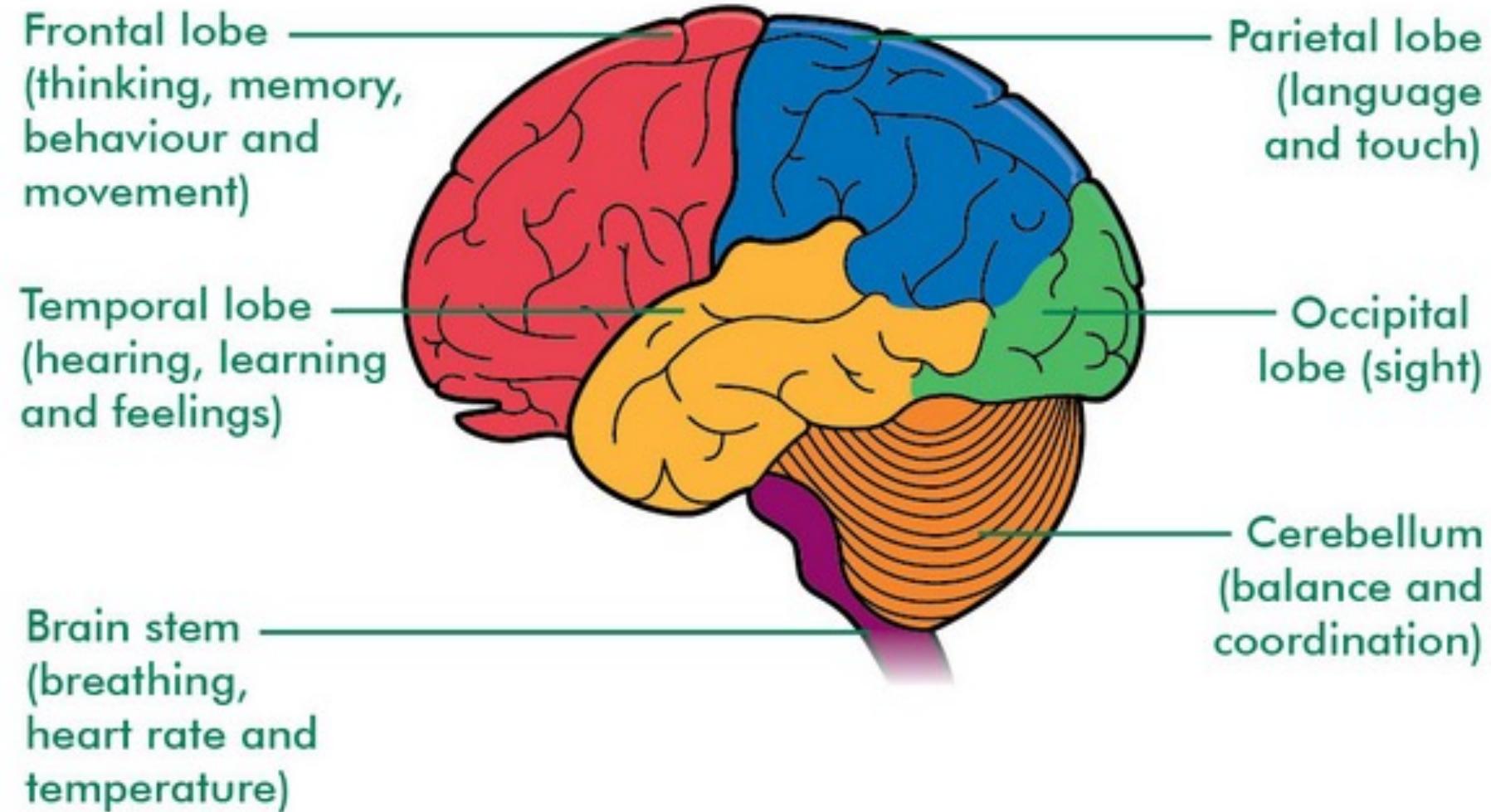
Three drawings and the copies made by the associative agnosic patient studied by Rubens and Benson (1971). Despite being able to see the drawings well enough to copy them, the patient was unable to recognize them.



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



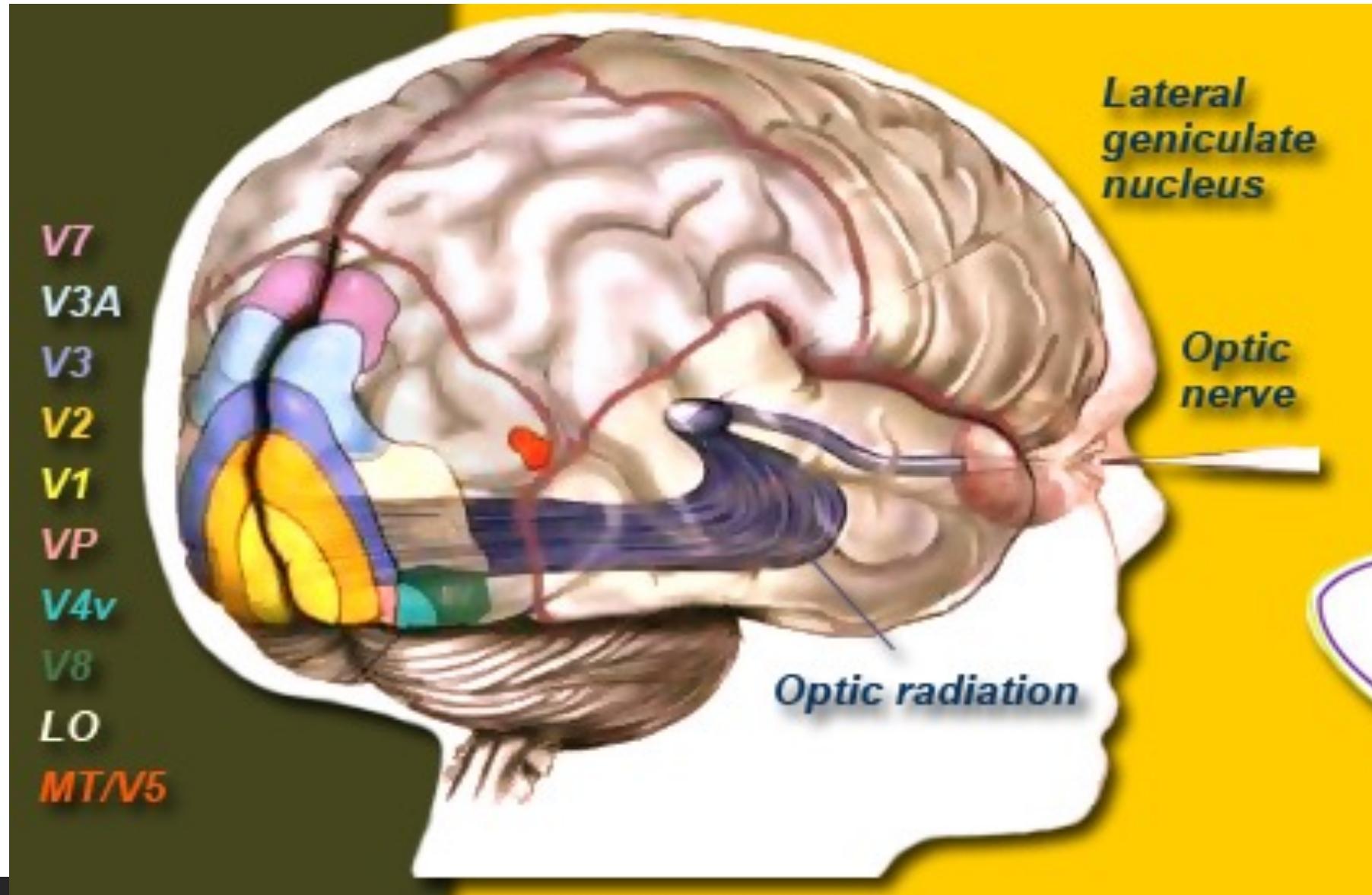
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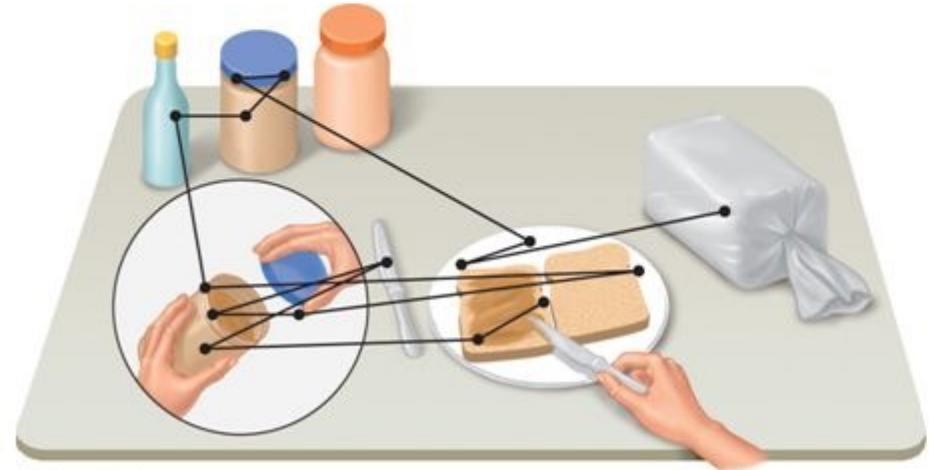
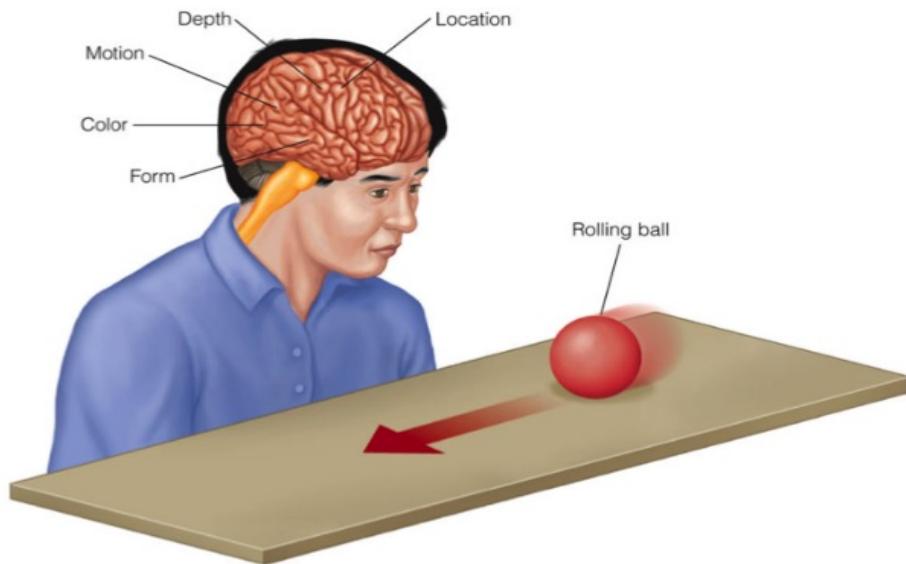
PROCESSIGN - HOW DO WE DO A SIMPLE DETECTION, IDENTIFICATION, & RECOGNITION TASK?



Processing



The BINDING PROBLEM



HOW DO WE INTEGRATE DIFFERENT INFORMATION ?

ATTENTION – works as a glue to integrate the relevant information together



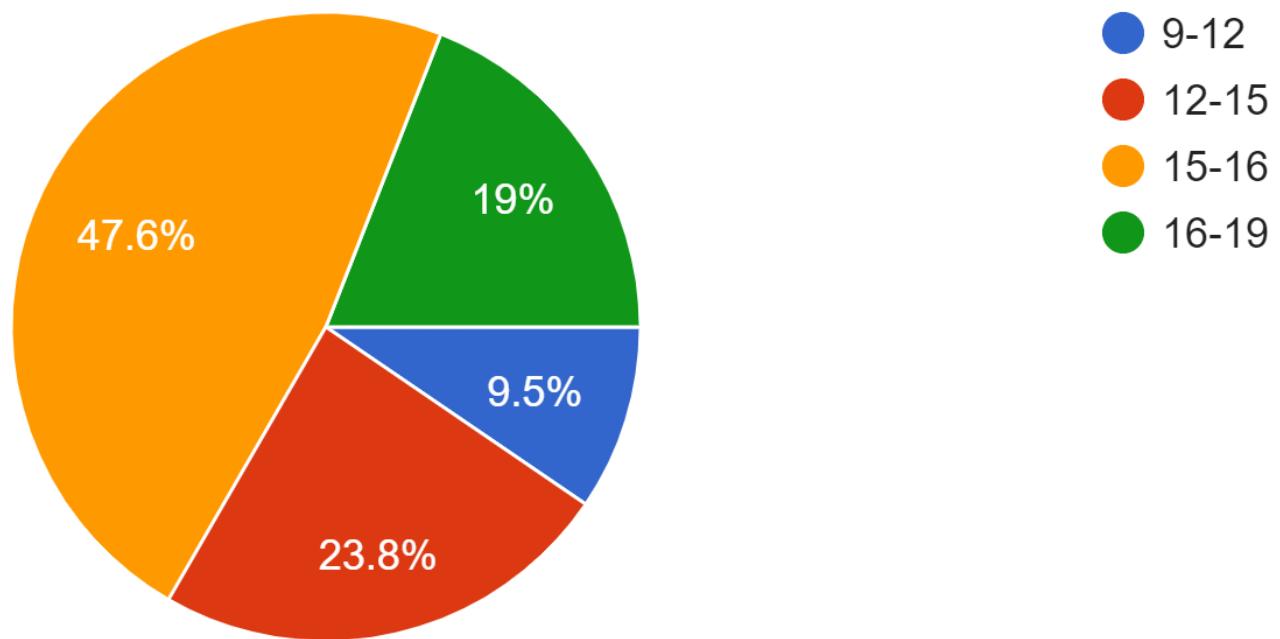
WHAT IS ATTENTION?

IHS Spring 23 - Visual Attention



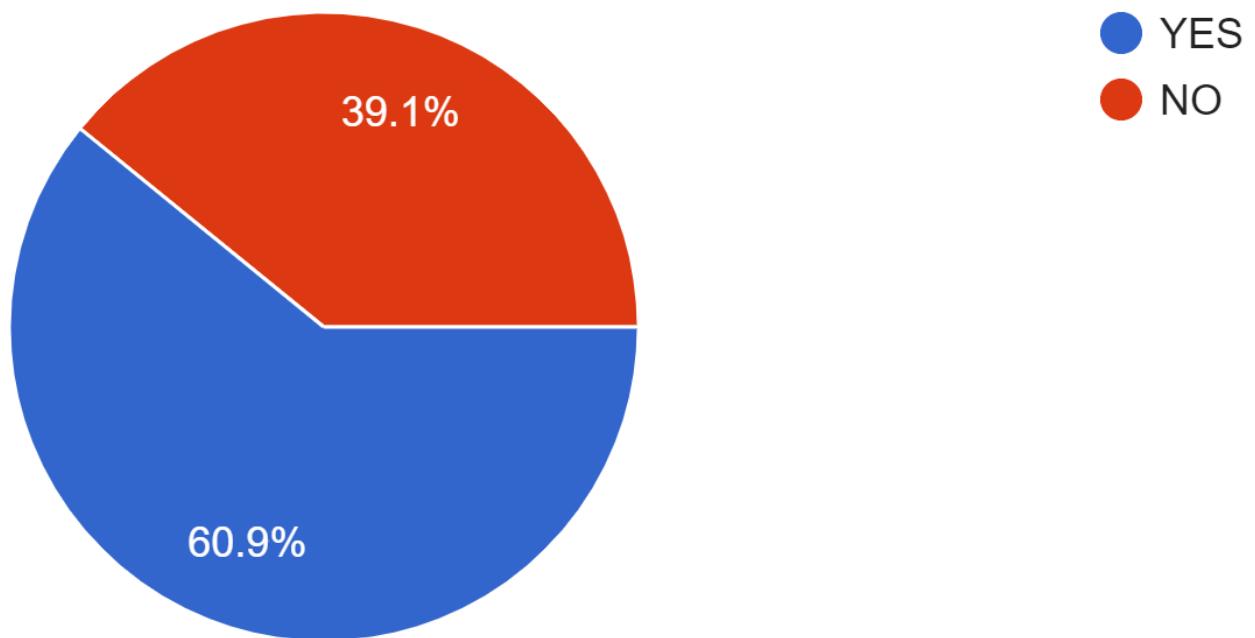
How many times the players wearing white pass the ball

21 responses



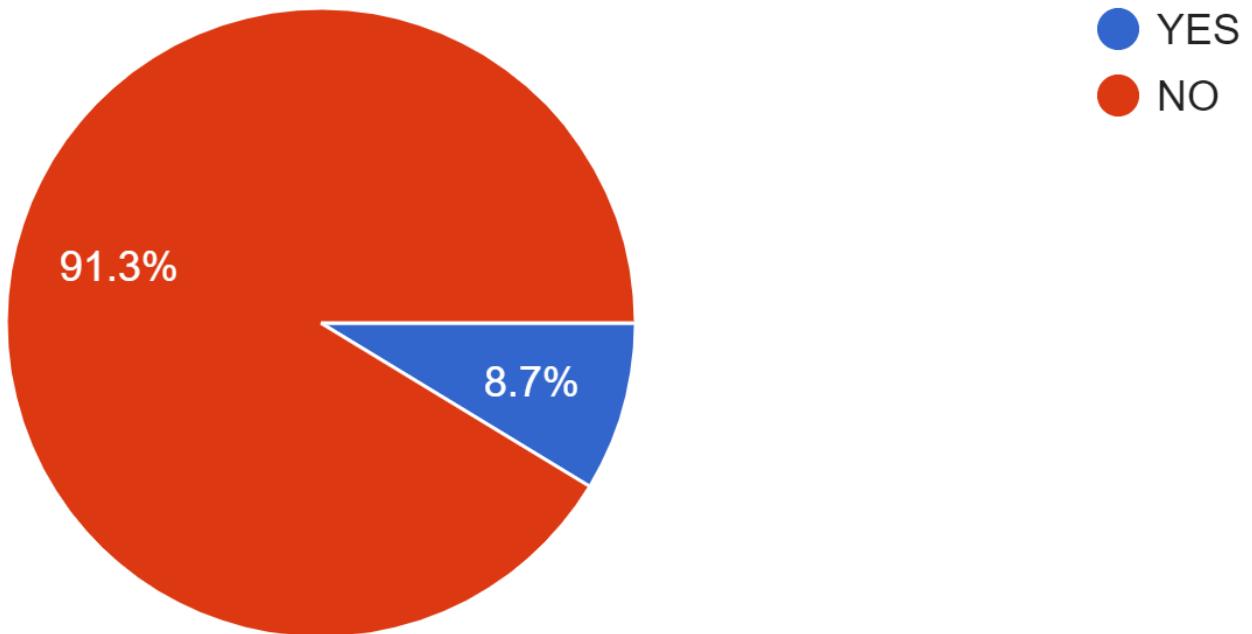
Did you see the Gorilla?

23 responses



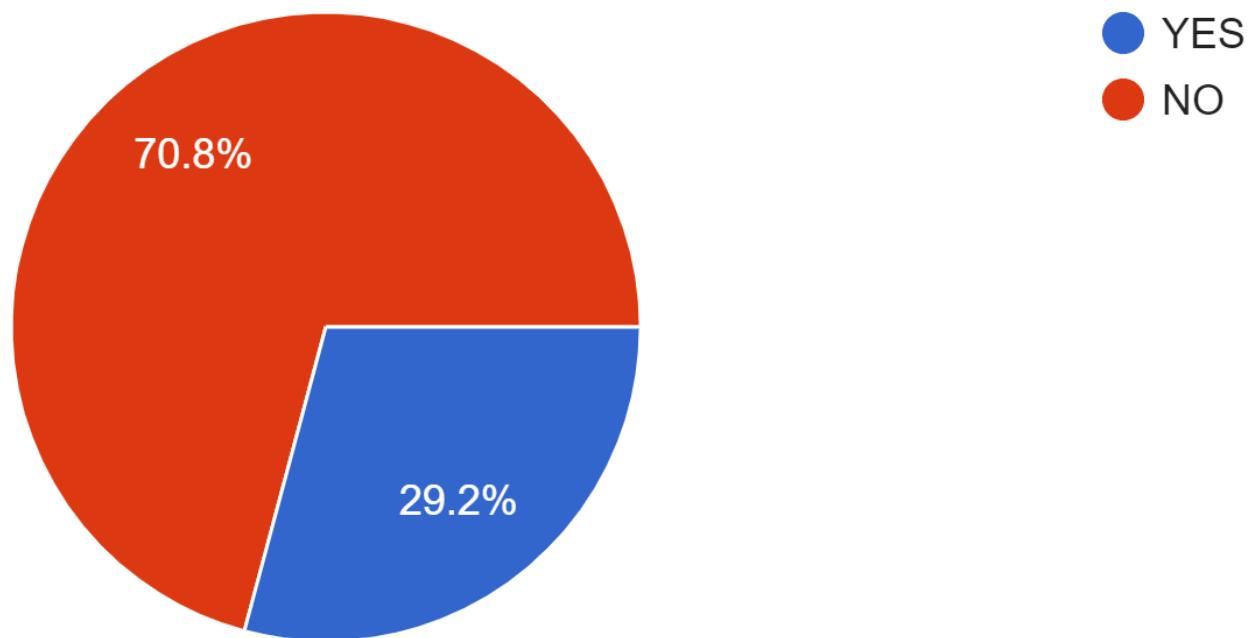
Did you see curtains changing color?

23 responses

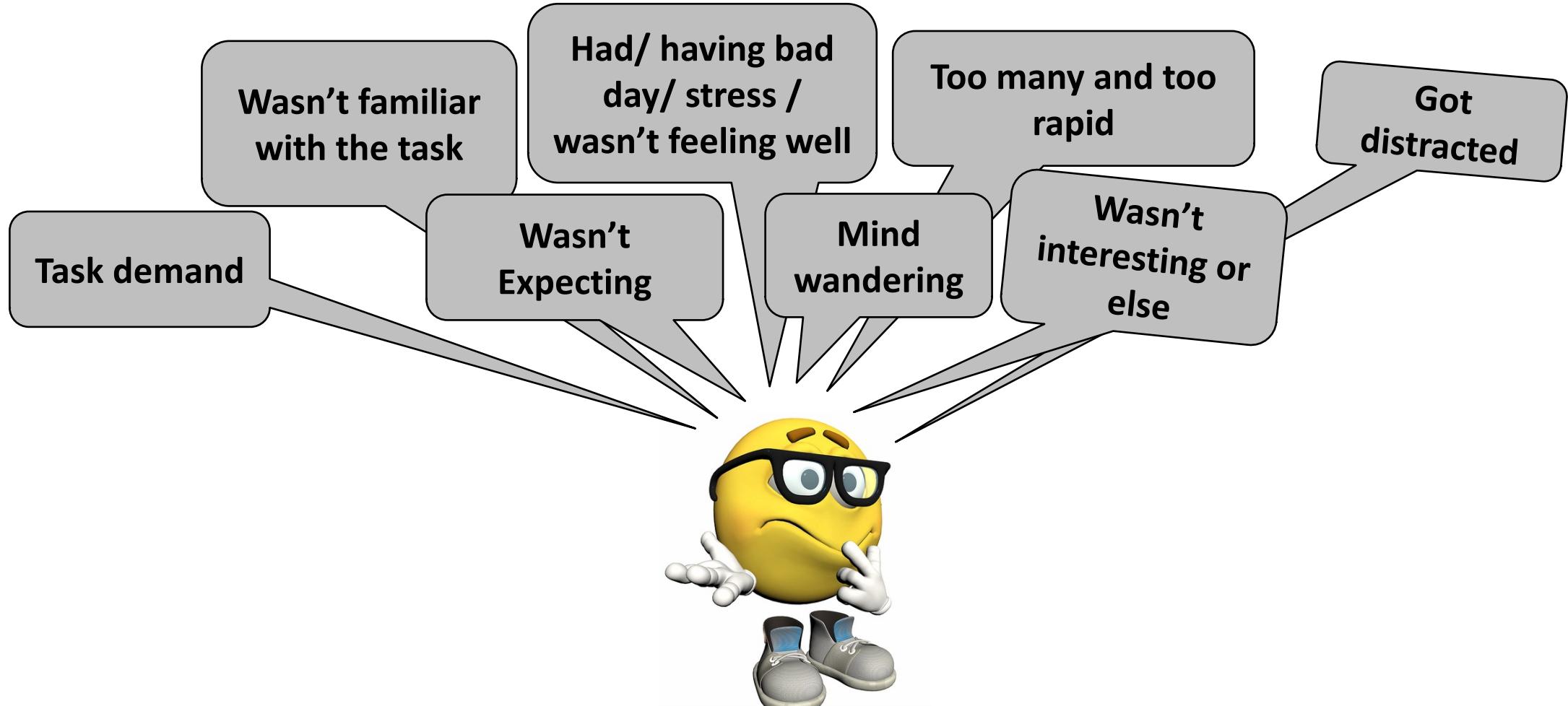


Did you notice a player in the black team leave the game?

24 responses



Wondering how did you FAIL to Notice Gorilla or the other changes?



Task demand, Cognitive Load, but Stress, Fatigue, Motivation, Interest, Knowledge, Belief, Emotion, and Feeling also modulates the filter and central attention

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



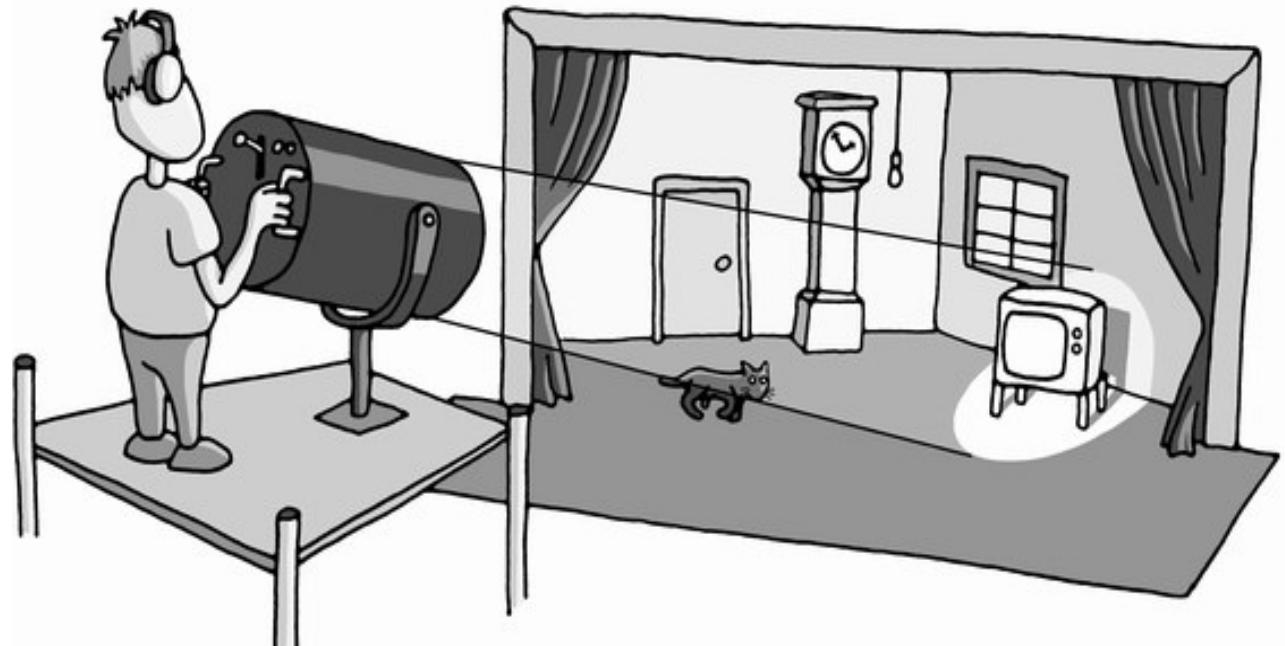
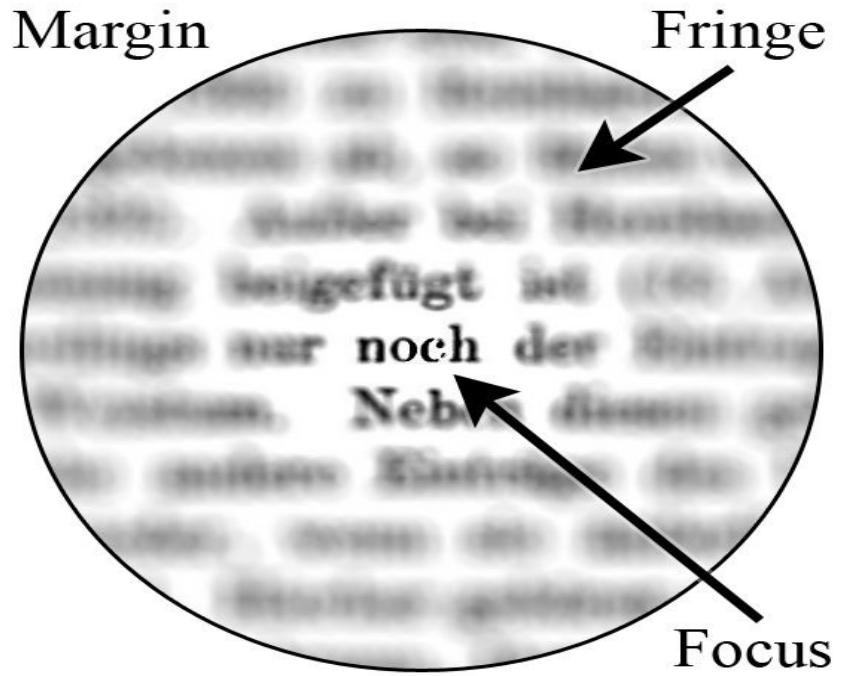
- Change Blindness *vs.* change detection – failure to detect changes to the visual details of a scene



ATTENTION

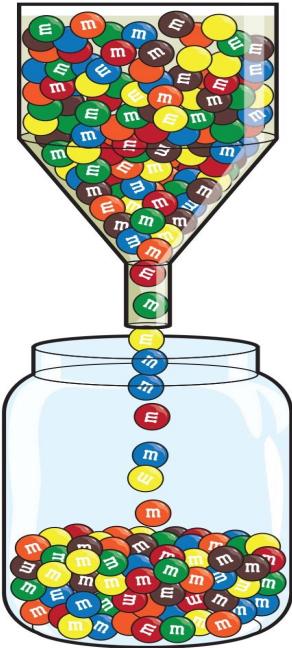


- An ability to selectively focus on relevant information while ignoring the irrelevant information and enable selective focus
- Work as a SPOTLIGHT – metaphor used to describe attention

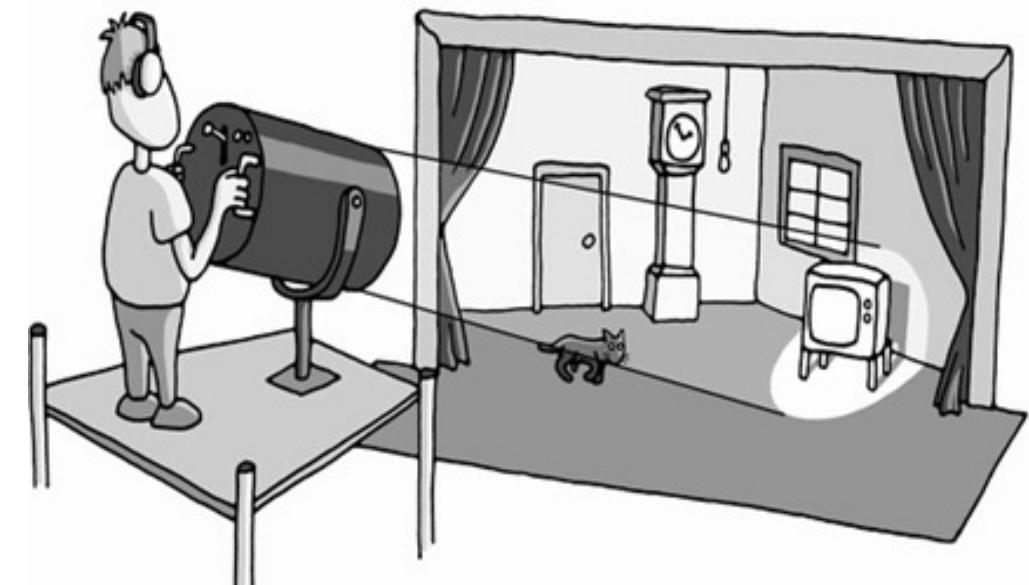
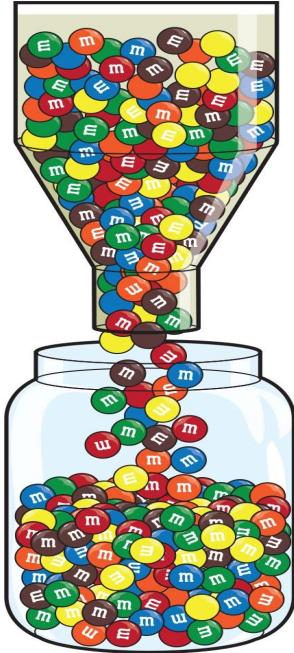


What is Attention?

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

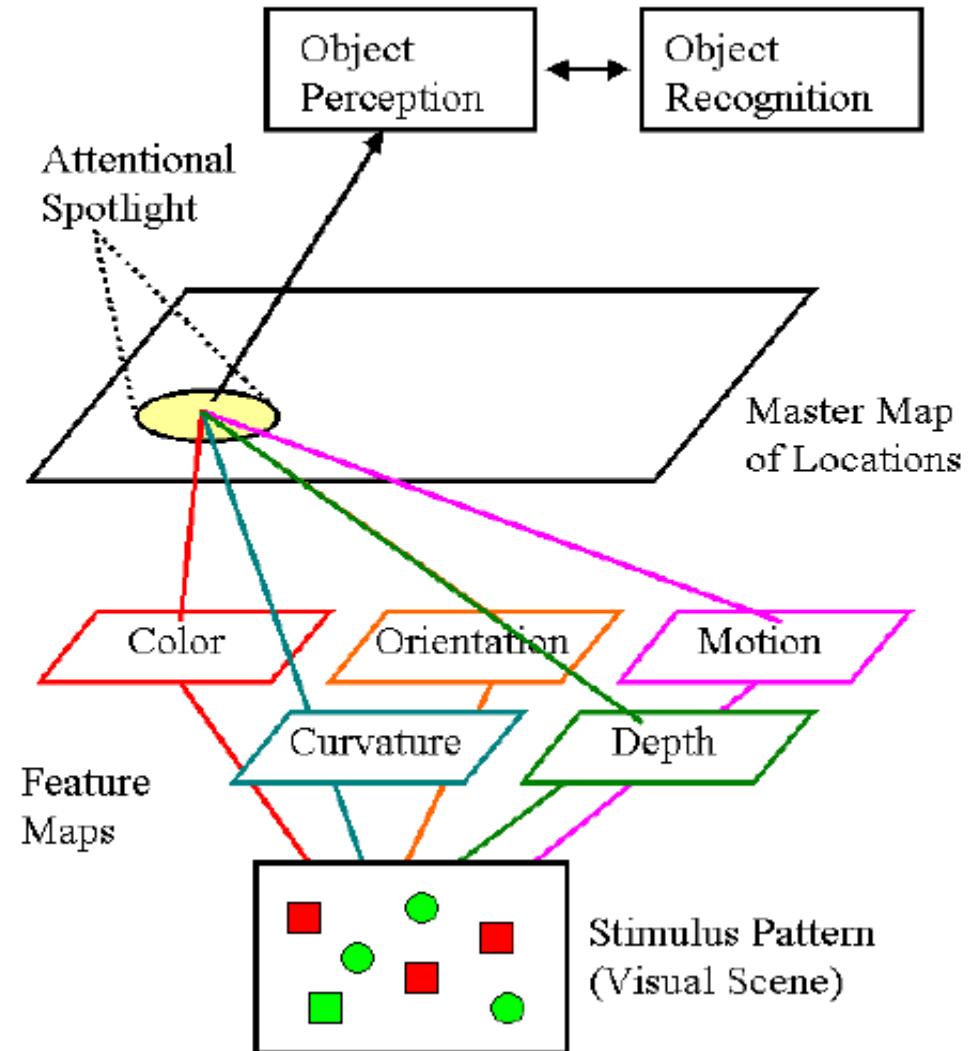
- Enable dividing your attention to more than one task - multi-tasking / dual task
- We have multiple resources to juggle between tasks
- The efficiency of juggling between task depends on practice, task complexity, stimulus features, task demand, sharing of stimulus features / actions between two tasks

ATTENTION

Attention is an ability to selectively focus on a relevant stimuli and ignore the irrelevant stimulus

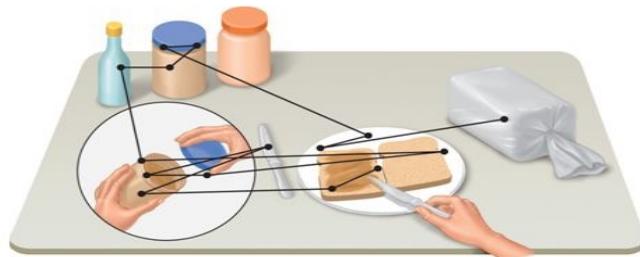
Attention work as a **GLUE – FEATURE INTERGRATION**

Feature Integration Theory (Treisman)



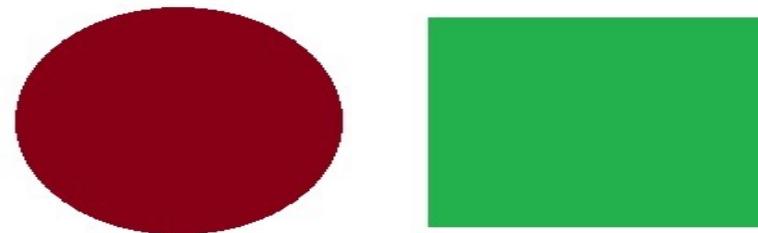
When attention fails !

Influence Perception

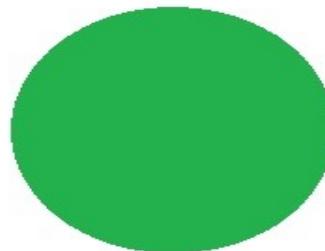


The **BINDING PROBLEM**

Visual stimuli shown to participant



Illusory conjunction formed



Illusory Conjunction

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



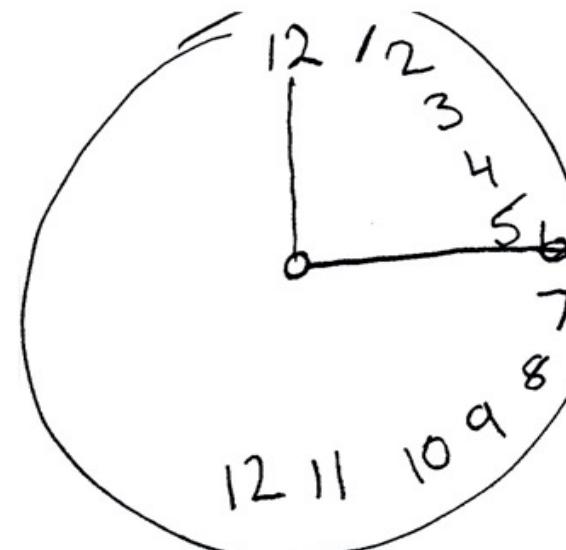
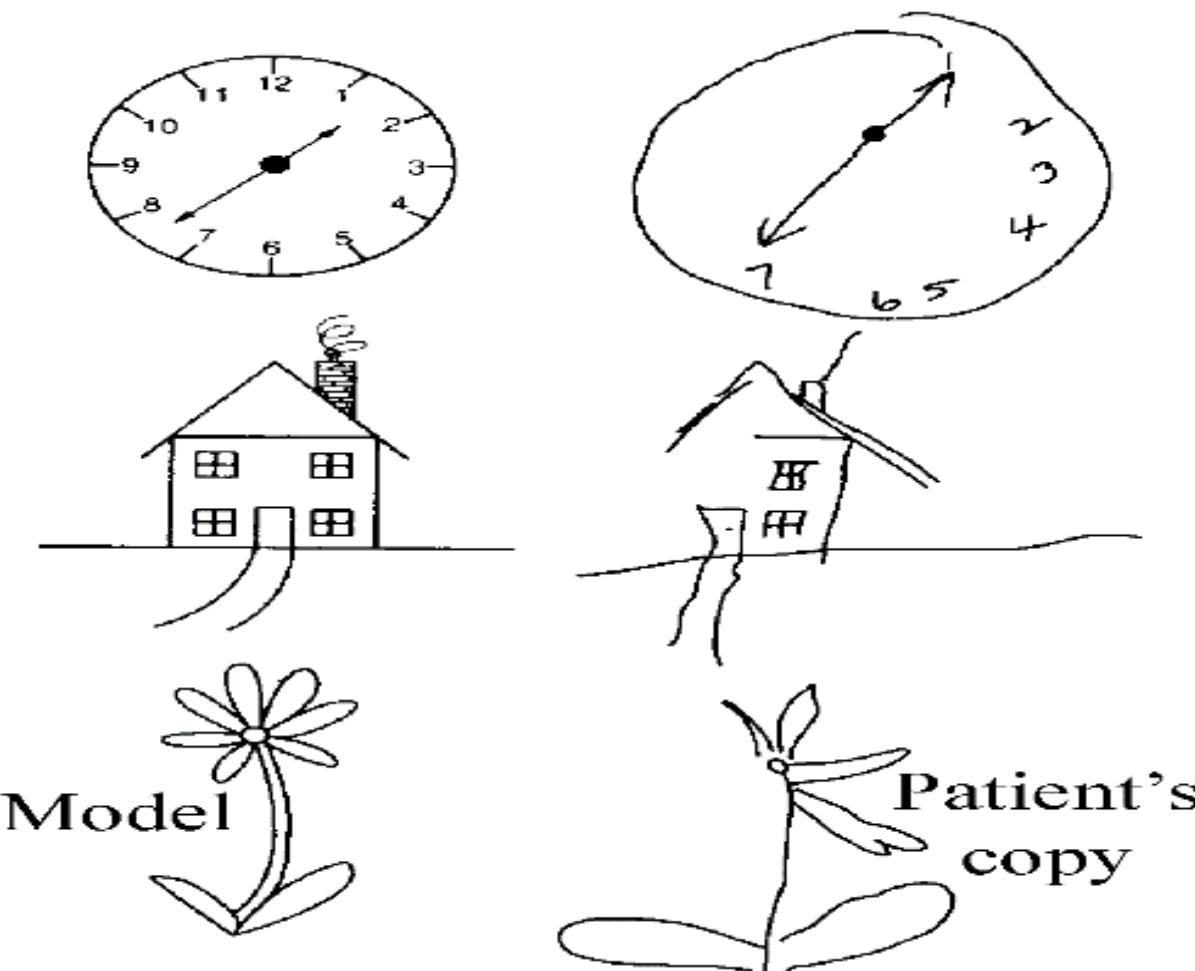
- Change Blindness – failure to detect changes to the visual details of a scene



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 – not just sensory but self and memory problem as well !



- 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

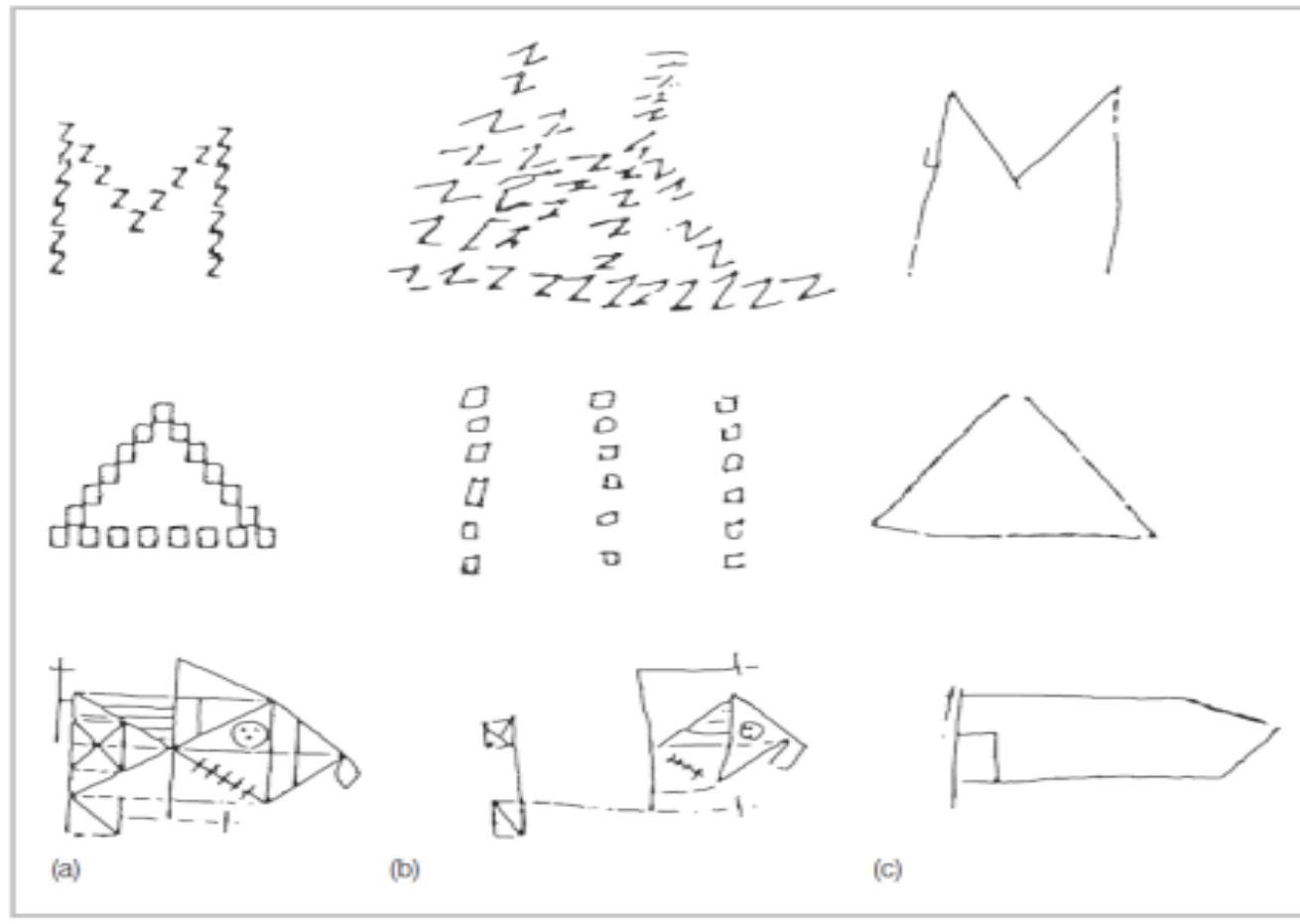
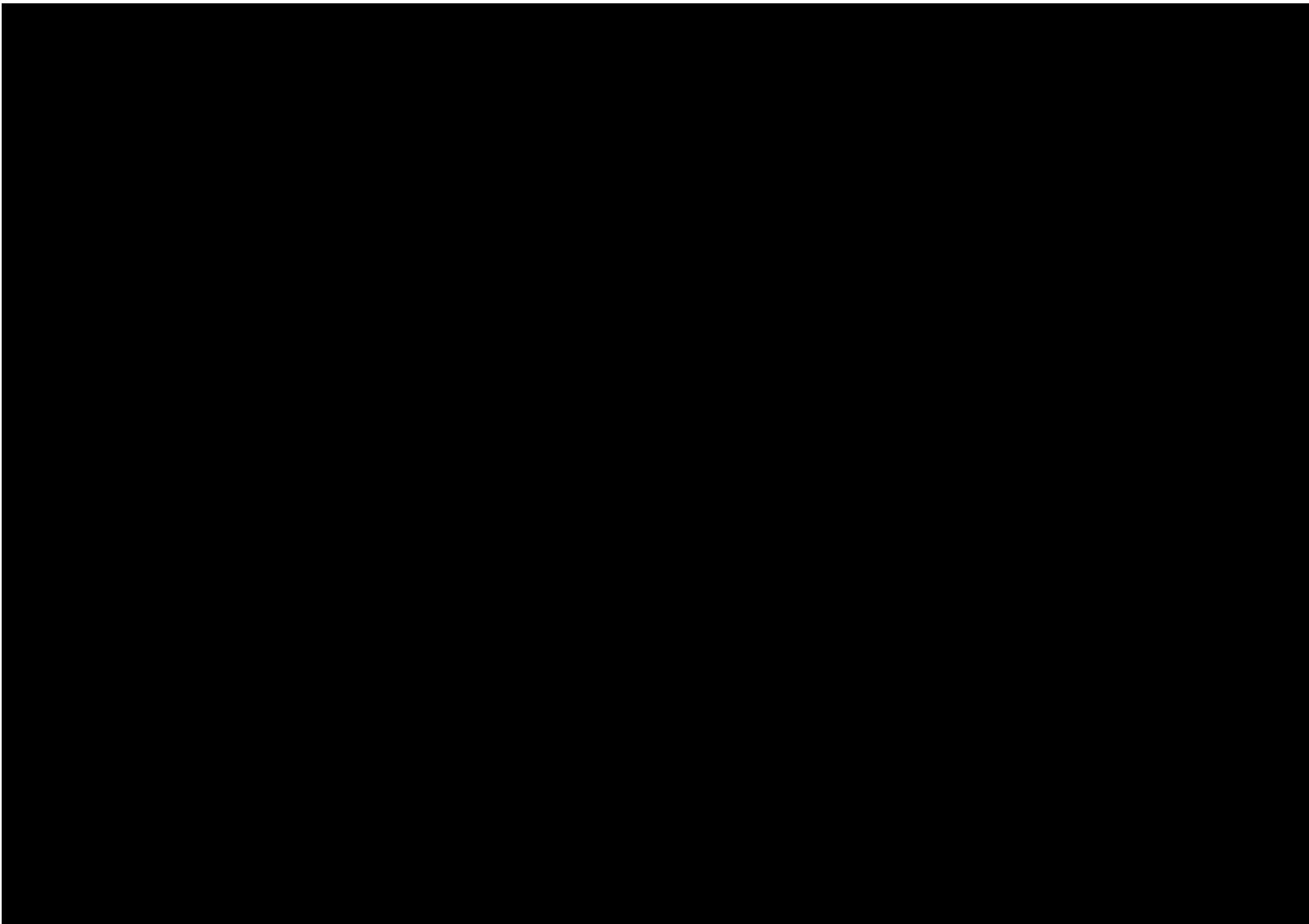


FIGURE 3.18 (a) The pictures presented to patients with parietal damage. (b) Examples of drawings made by patients with right-hemisphere damage. These patients could reproduce the specific components of the picture but not their spatial configuration. (c) Examples of drawings made by patients with left-hemisphere 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





**Any
questions**