



Devon & Cornwall  
**HOUSING**

THE HOUSING  
CORPORATION

*Plymouth*

Uxbridge Drive, Liskeard

As part of the 2011 Plymouth Local Plan, the Corporation is seeking to develop a new housing development of approximately 200 dwellings on the site of the former Liskeard Prison, located on Uxbridge Drive, Liskeard.

# Sensory Processing & Integration Looking for a new insight





# Introduction

- “What happens to a sense?” a history of Psychology
- Introduction of Sensory Integration

## WORKSHOPS

- Brain Systems and Sensory Roles
- A New View of Sensory Systems
- How can it affect the children we see?

# What Happens to a Sense?

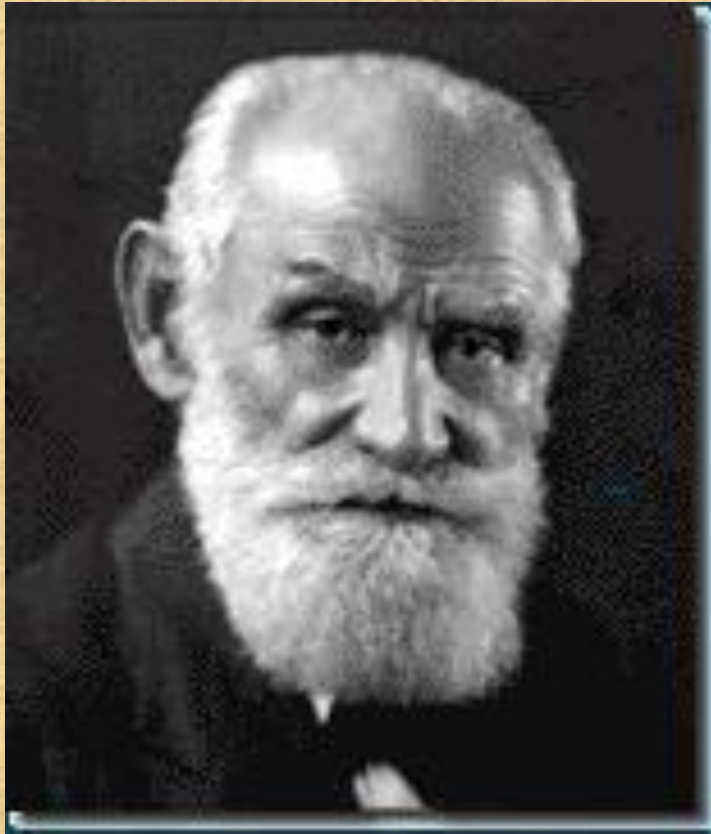
A journey back through time.

# The Behaviourists

## 1890's

All human endeavour can be  
explained as behaviour.

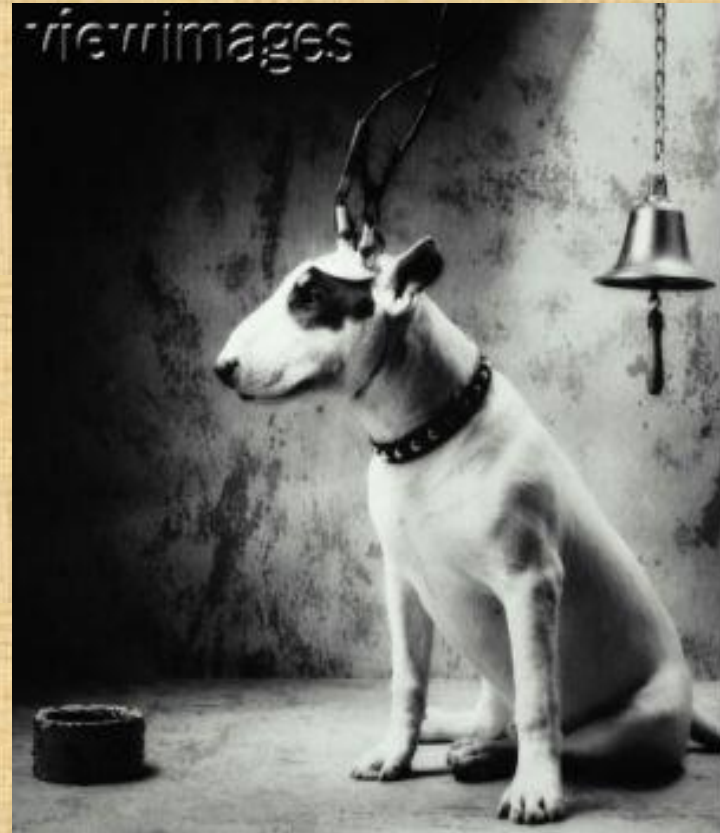
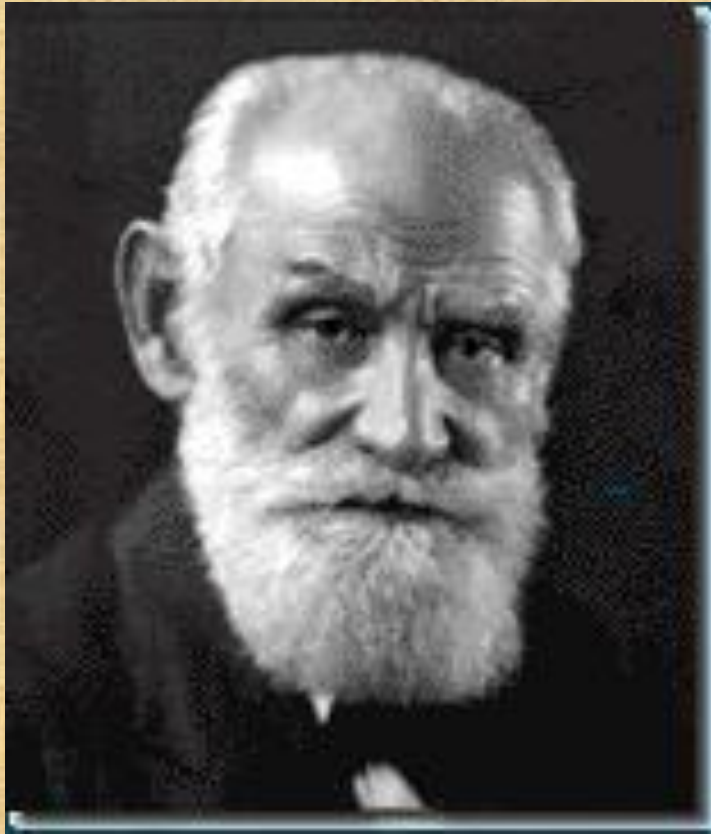
# Pavlov and his dogs 1848 -1936

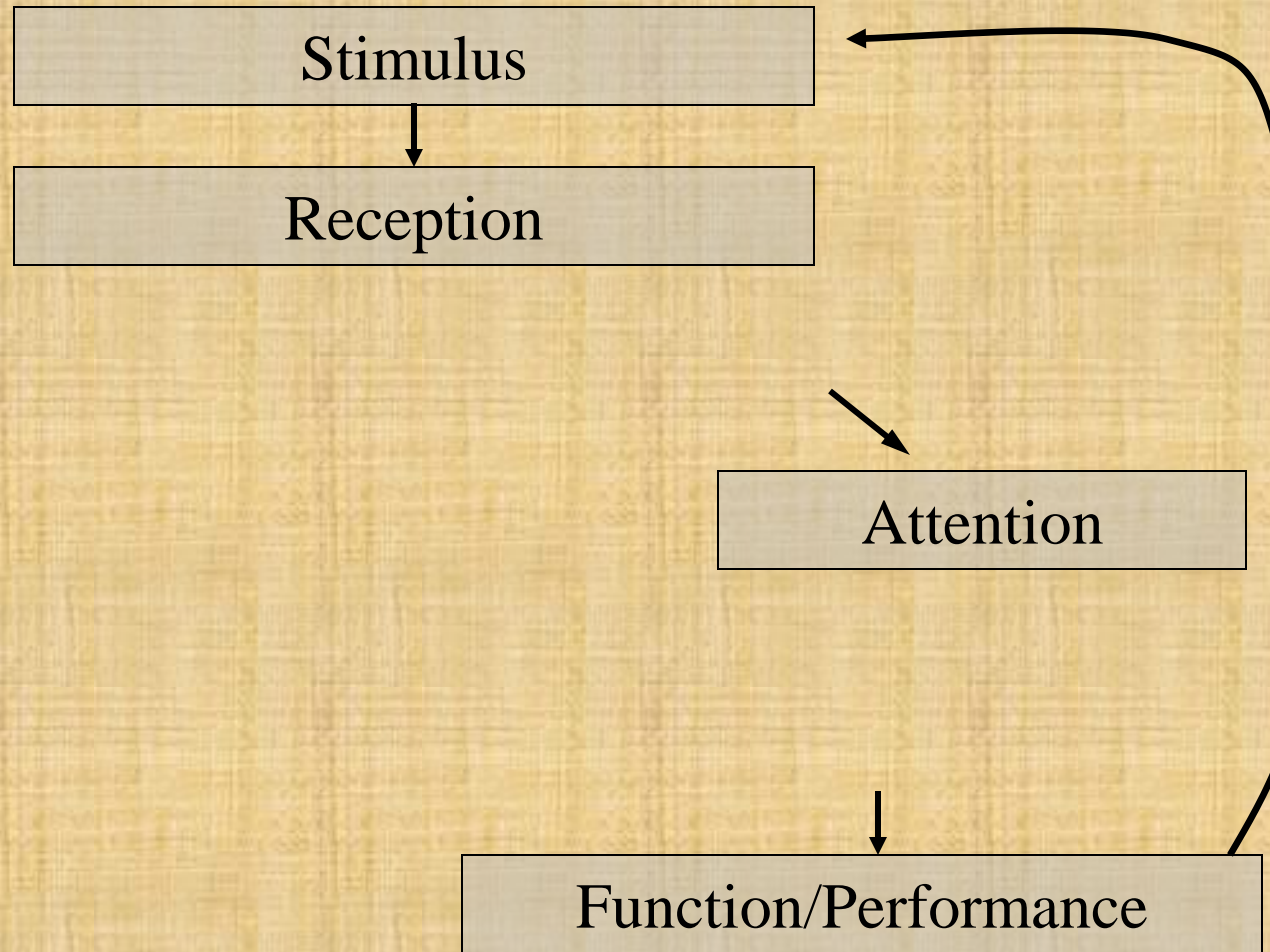


*' Only one thing in life  
is of actual interest to us  
- our physical experience.  
Its mechanism, however,  
has been, and remains,  
wrapped in a deep mystery '*



# Pavlov and his dogs 1848 -1936

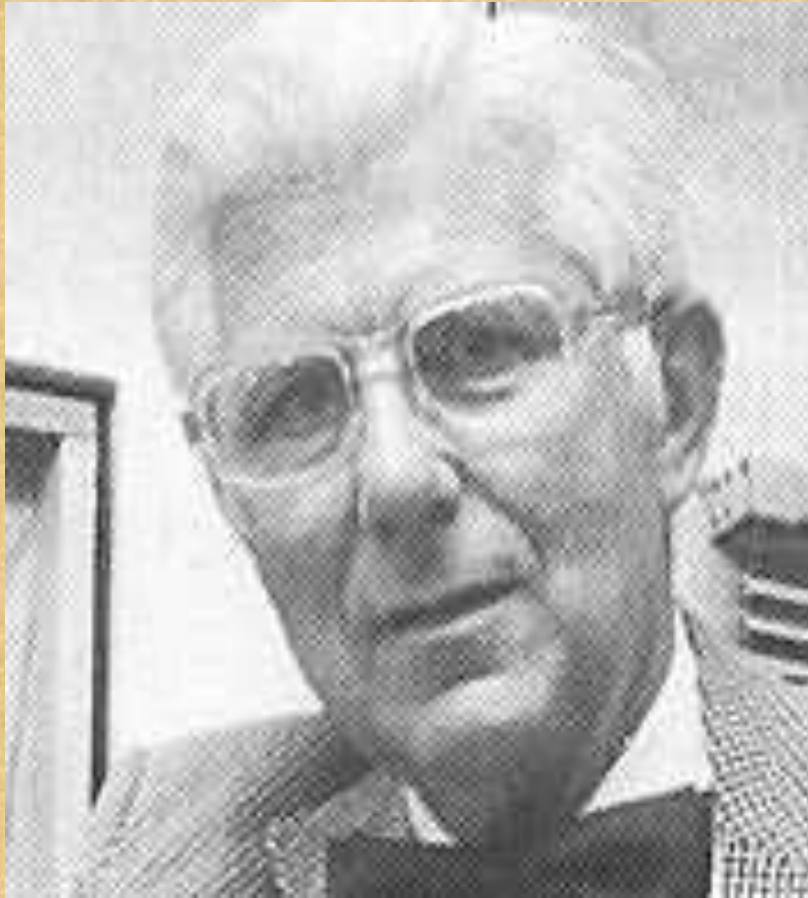






# The Cognitive Psychologists 1950's

I think therefore I am

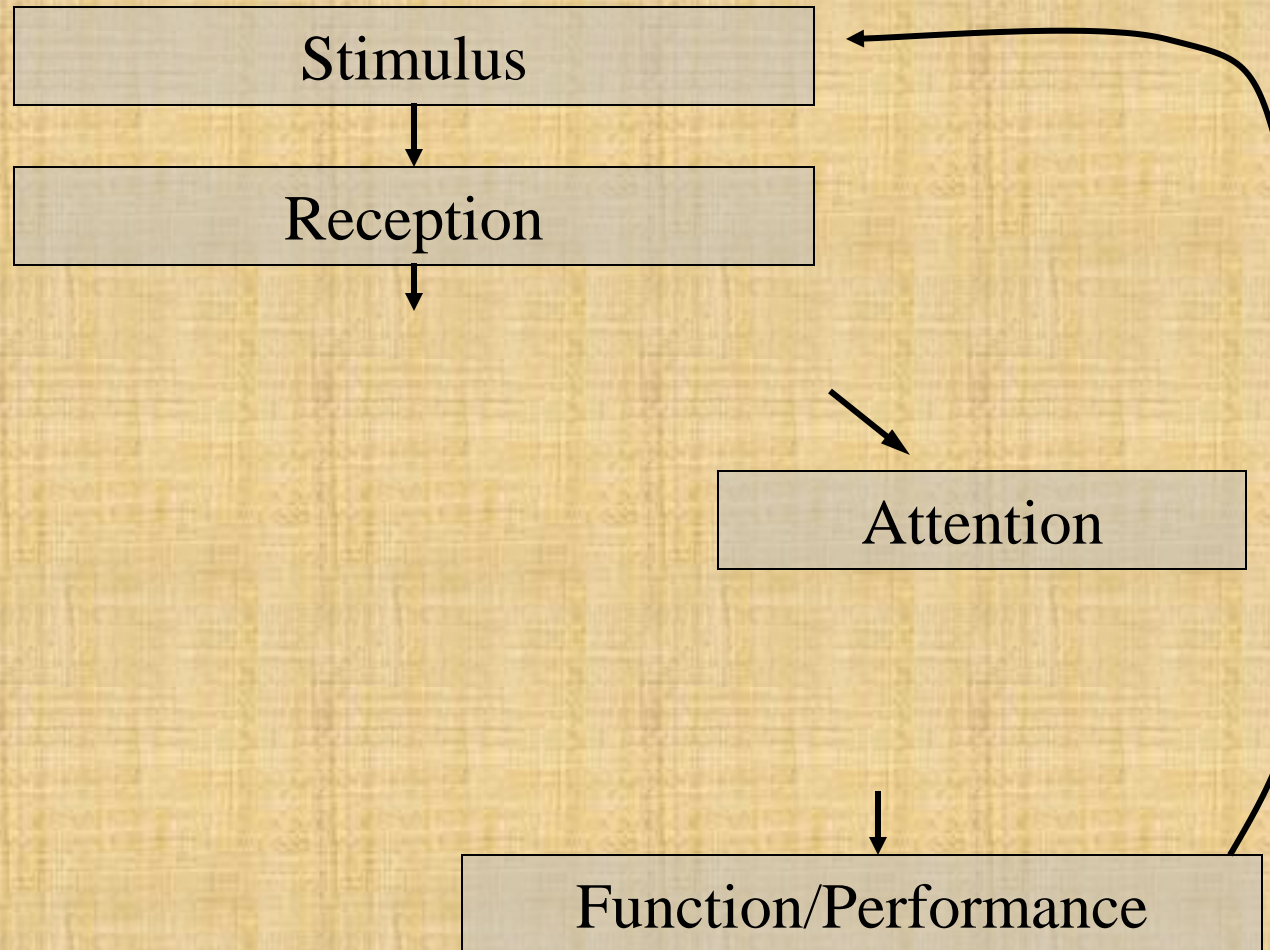


# Aaron T Beck

1921 - date

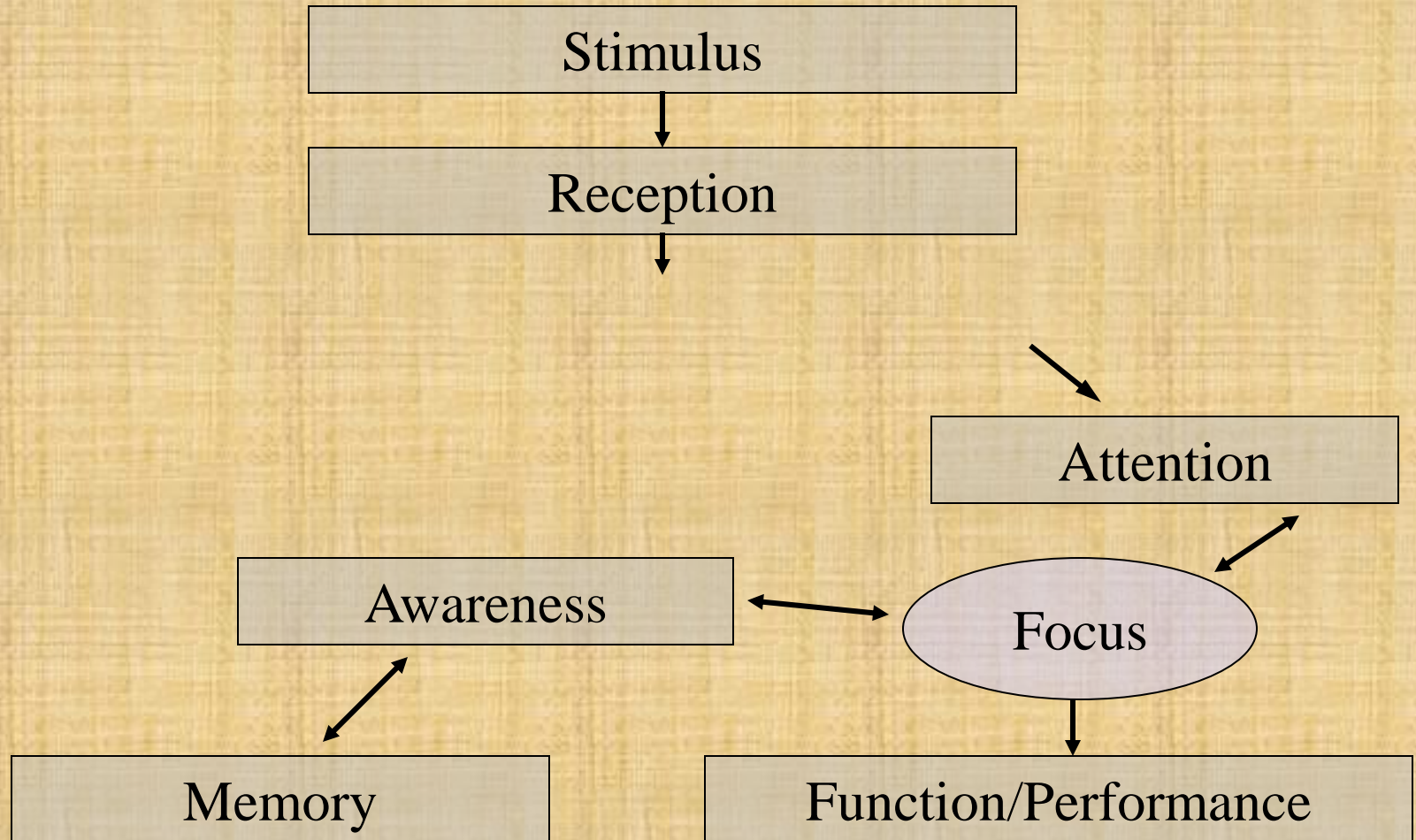
“Dr. Beck established for the first time the efficacy of any psychotherapy for the treatment of depression.”

# What Happens to a Sense?





# What Happens to a Sense?



# The Humanists

## 1960's

I am therefore I develop



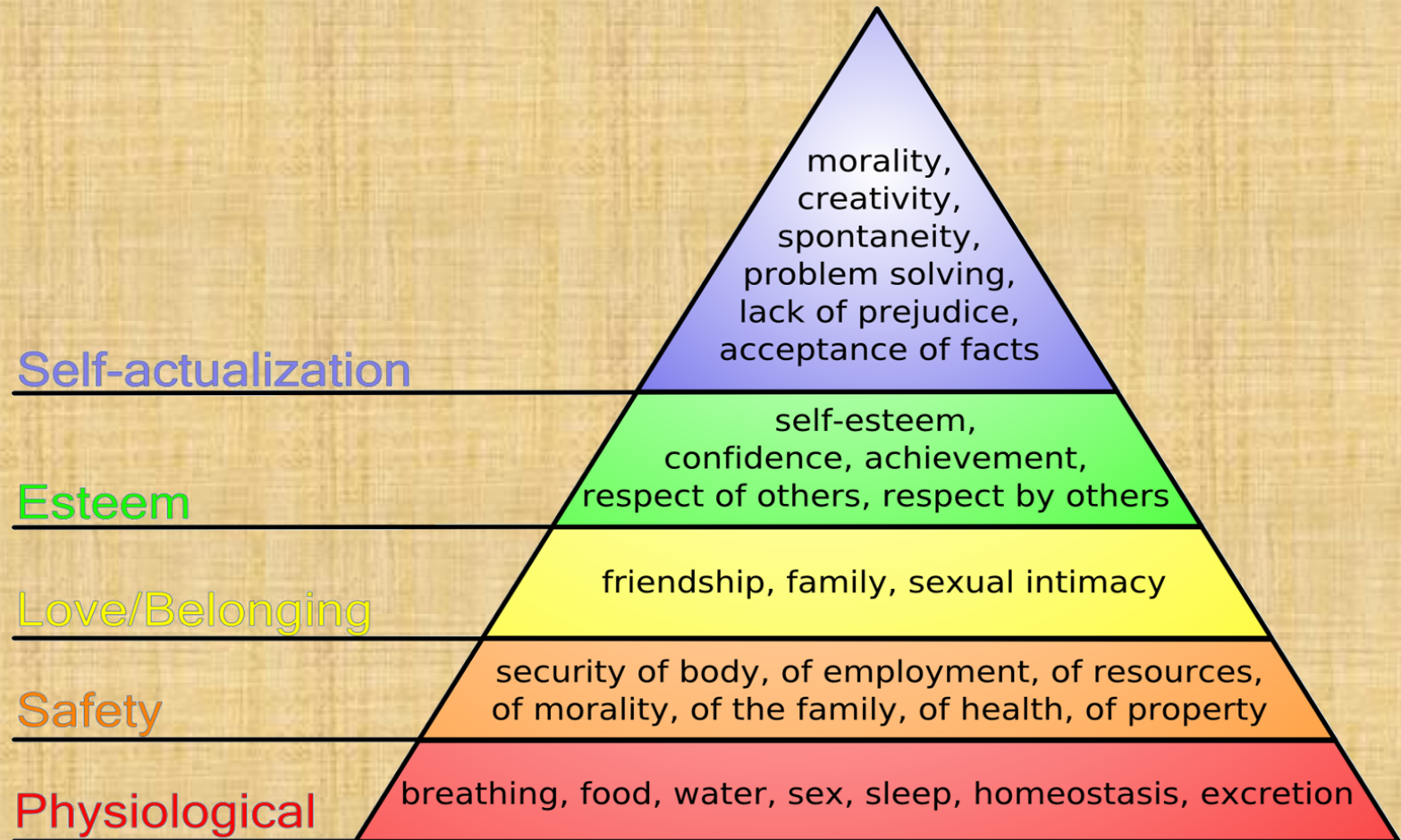
# Abraham Maslow

1908 - 1970

“all needs are  
instinctive, [but] some  
are more powerful than  
others”

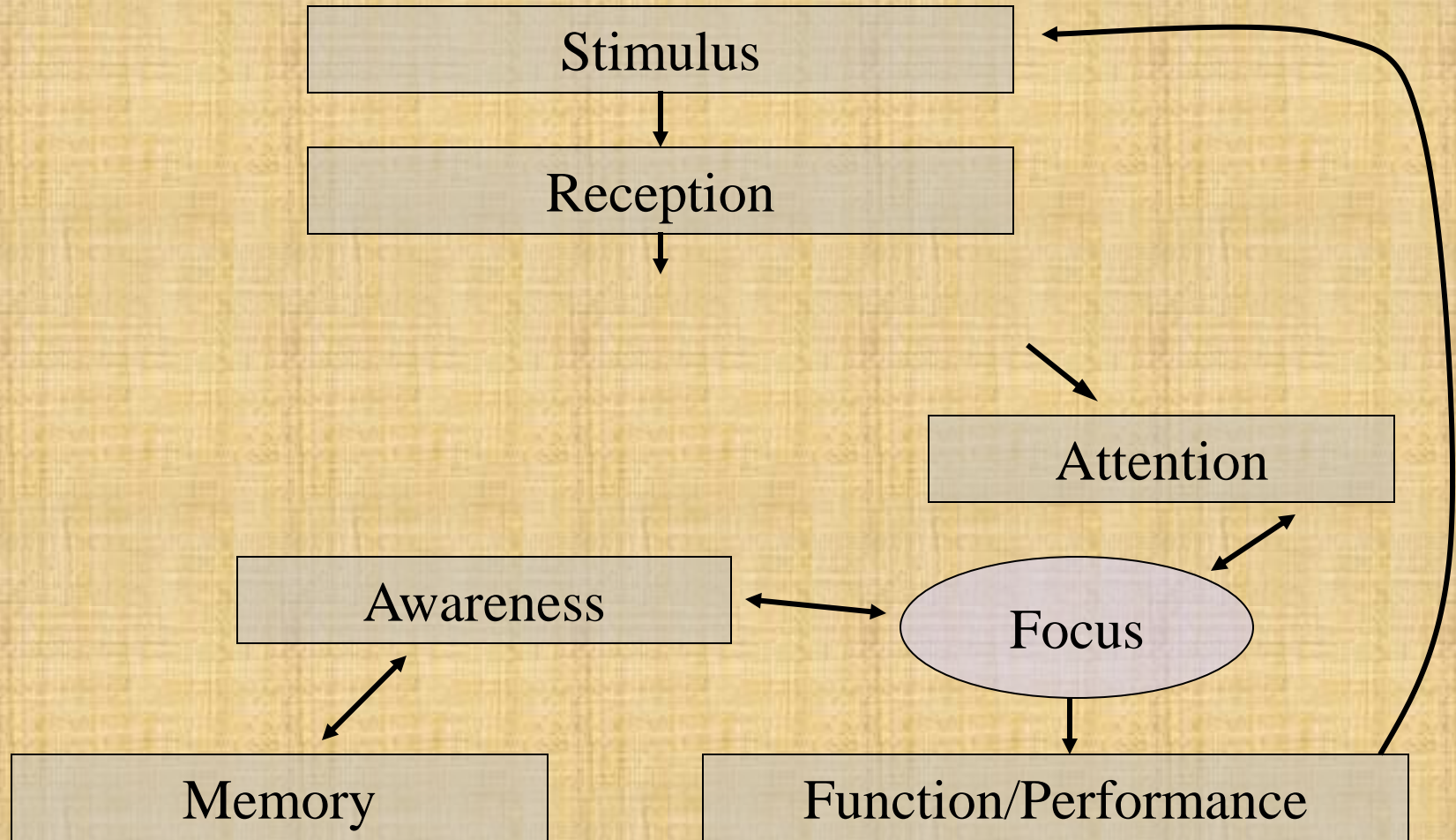


# Hierarchy of Human Needs



“The lower the need is in the hierarchy the more powerful it is.”

# What Happens to a Sense?



# Sensory Integration Theory

Sensation underlies all behaviour and thinking.





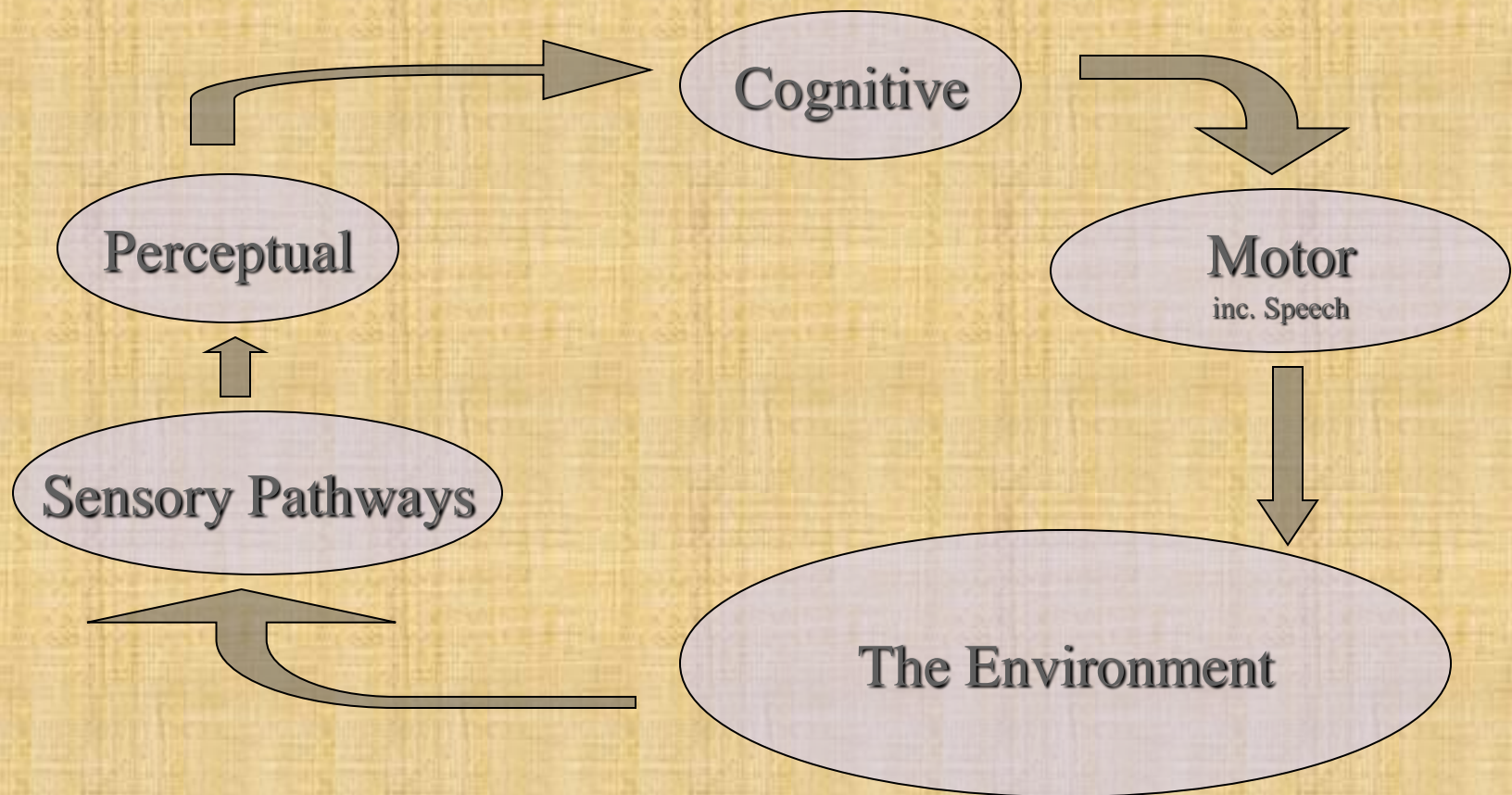
# Jean Ayres

1920 - 1988

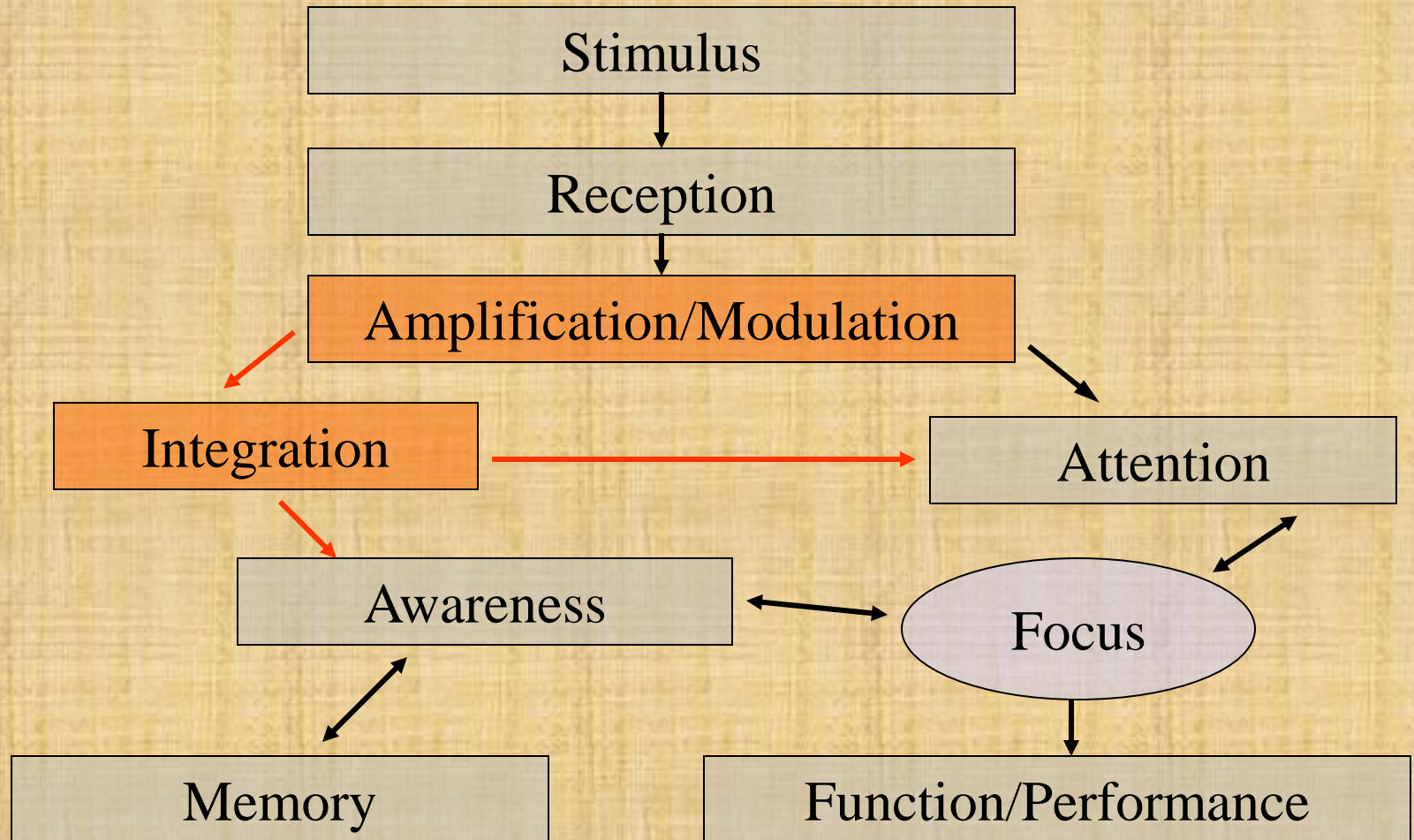
Believed that without understanding sensory systems our understanding of children's development was flawed.

# Sensation in the Human System

Informs all subsequent Neurological Processing  
And thereby behaviour.

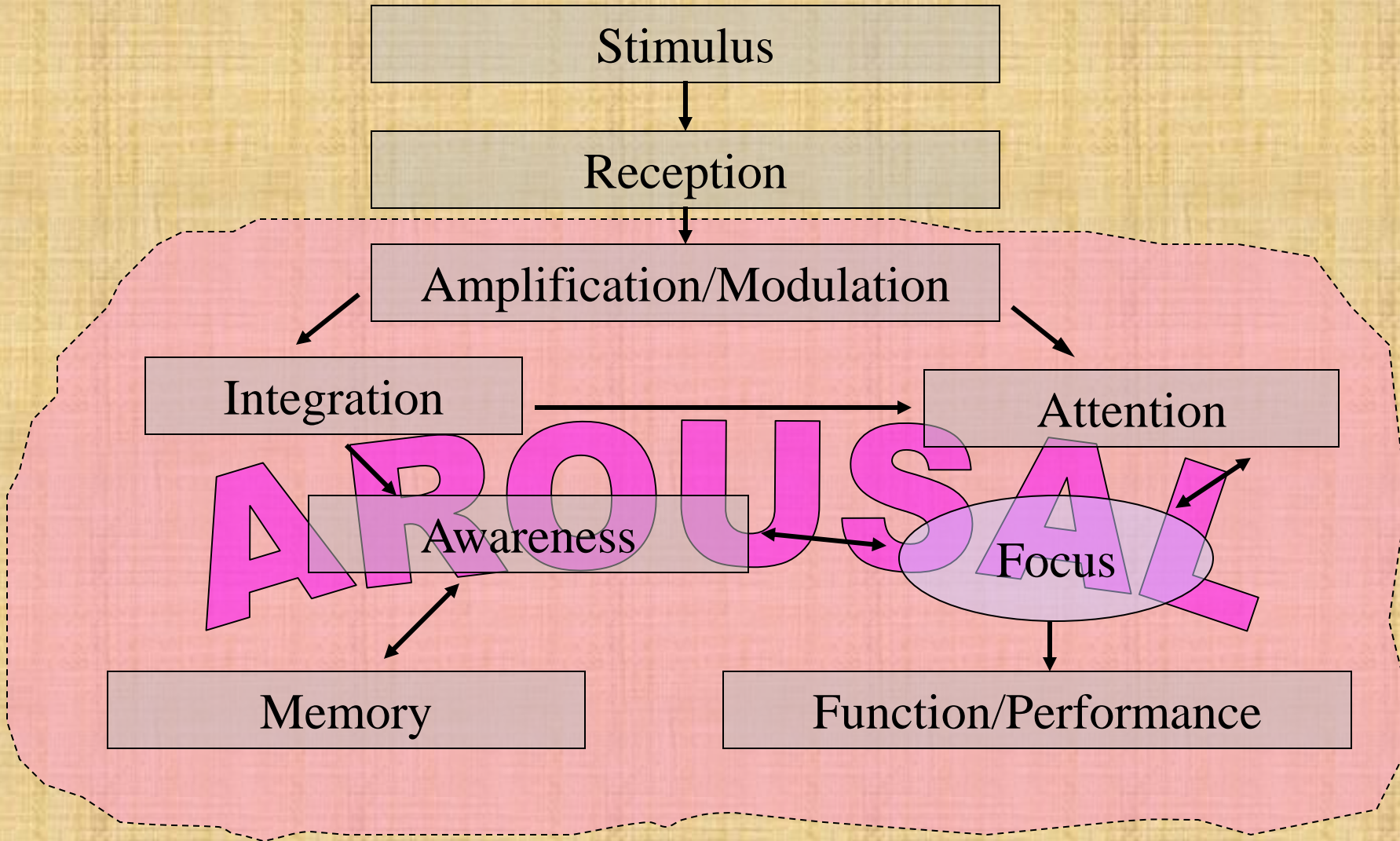


# What Happens to a Sense?

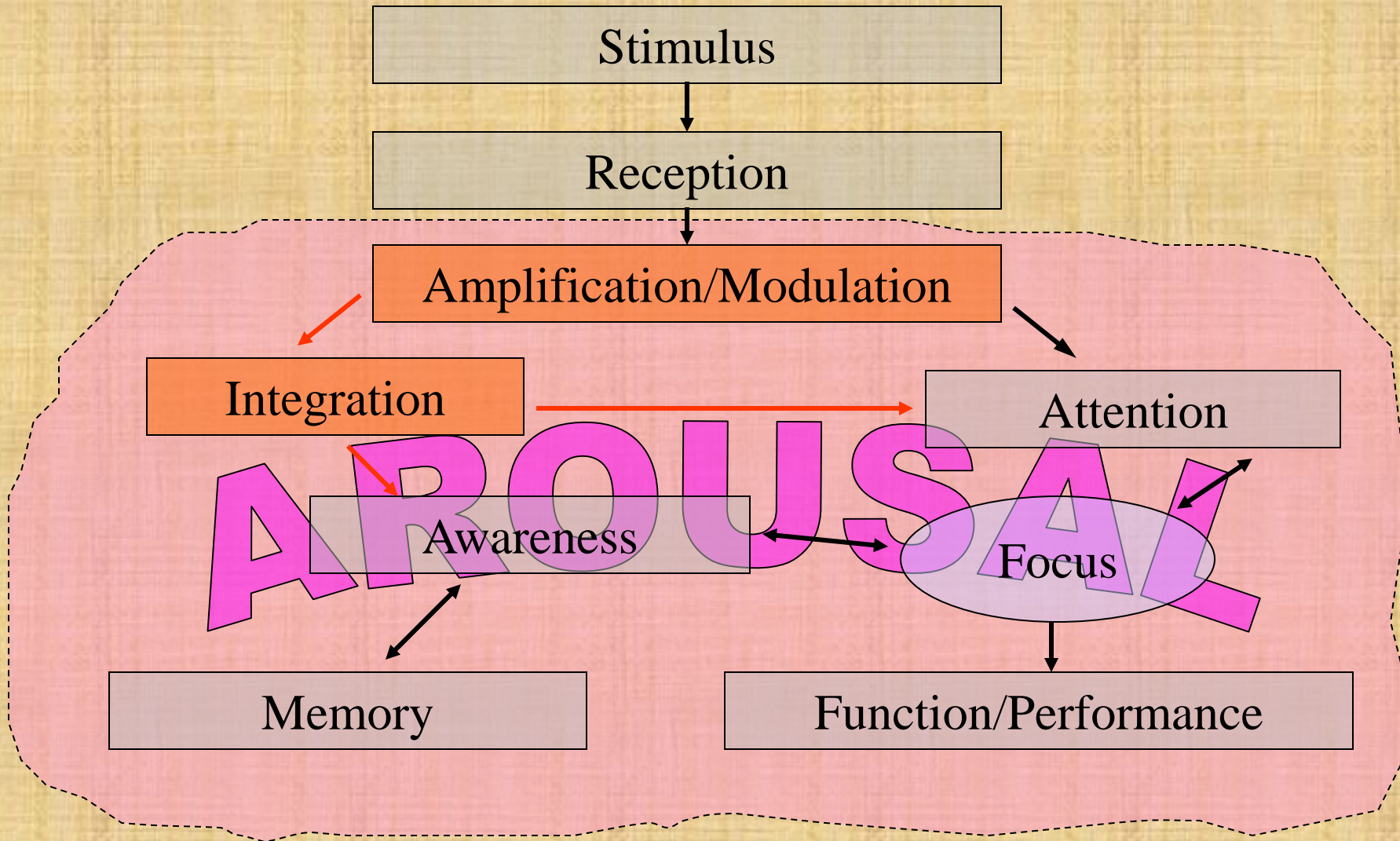




# What Happens to a Sense?

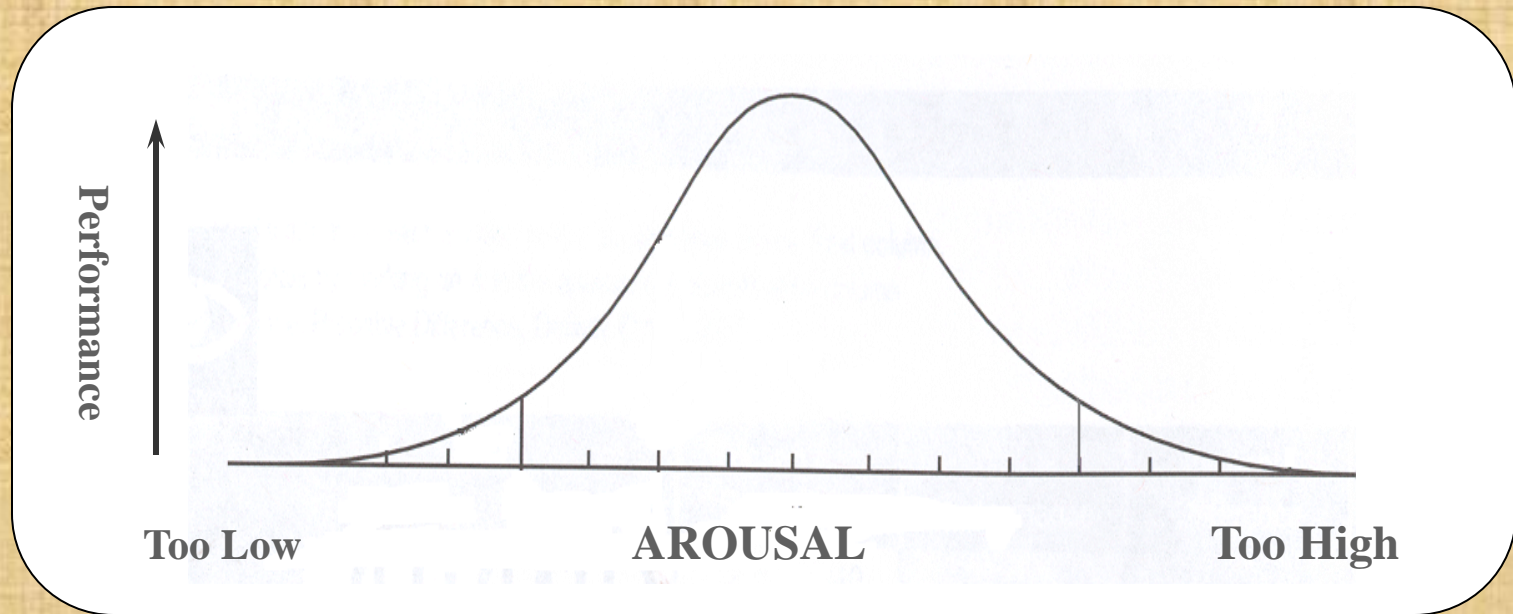


# What Happens to a Sense?



# WORKSHOPS

# Arousal, Performance & Sensation



Evidence increasingly suggests that this is an inter-relationship.

Some Sensory Systems may drive or lower Arousal.

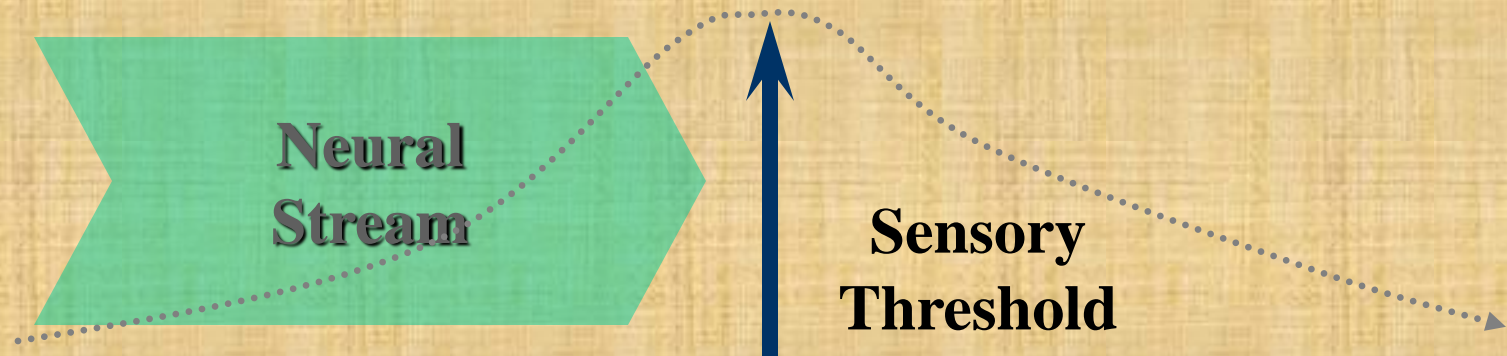
Correct Arousal States may influence successful Modulation



# Modulation and Registration

- Thresholds are set so that registration attention occur when appropriate in our environment.

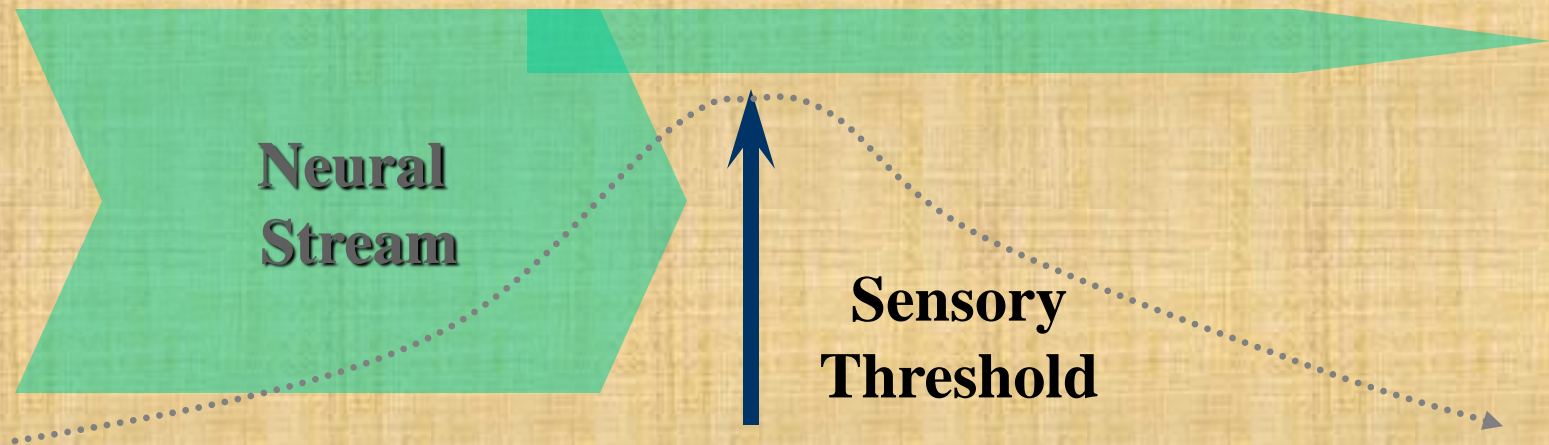
No Transmission



# Modulation and Registration

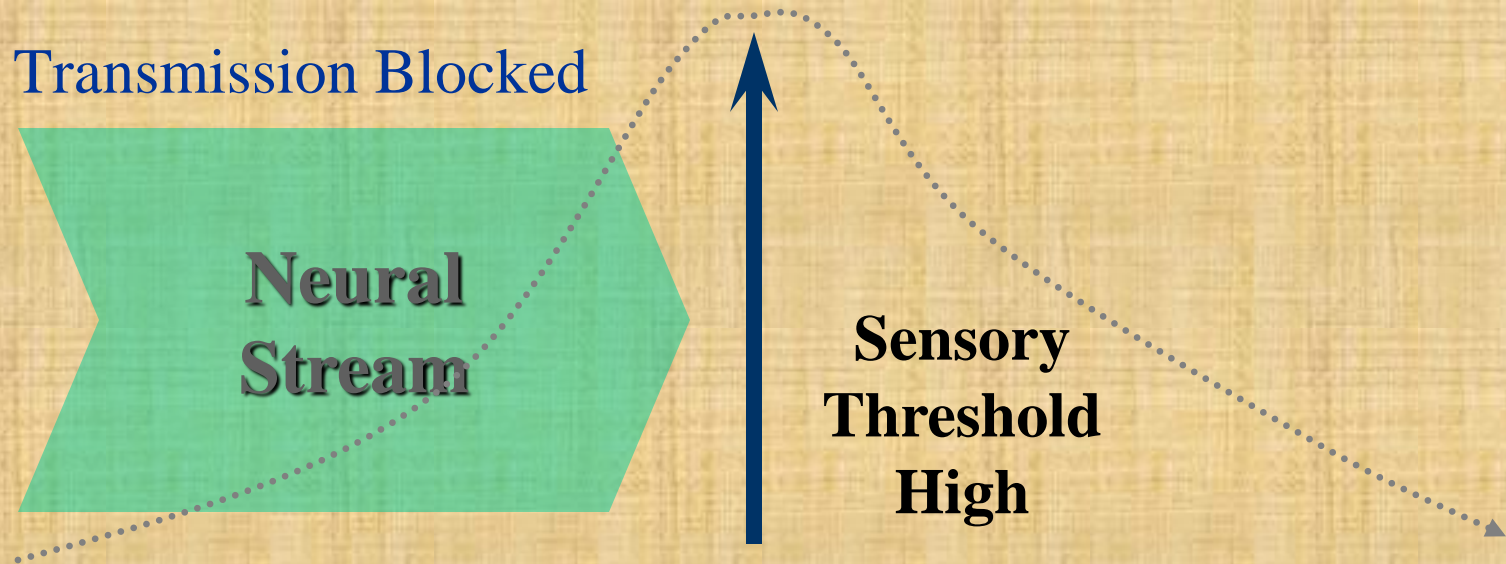
- Thresholds are set so that registration attention occur when appropriate in our environment.

Transmission



# Modulation and Registration

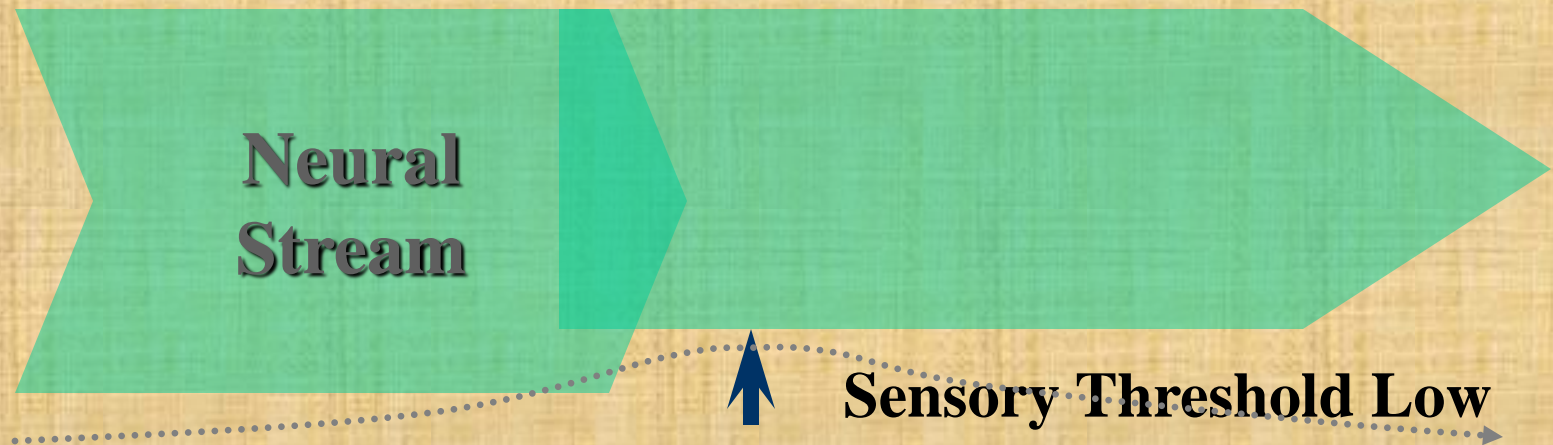
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# Modulation and Registration

- Thresholds are set so that registration attention occur when appropriate in our environment.

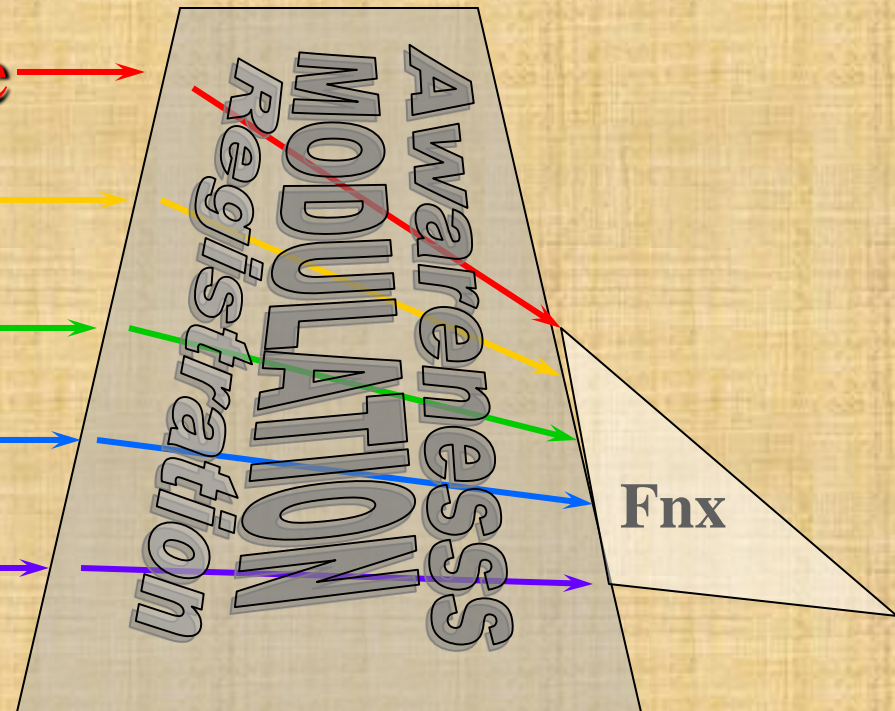
Transmission exceeds acceptable Level





# Sensory Processing Pathways & Modulation

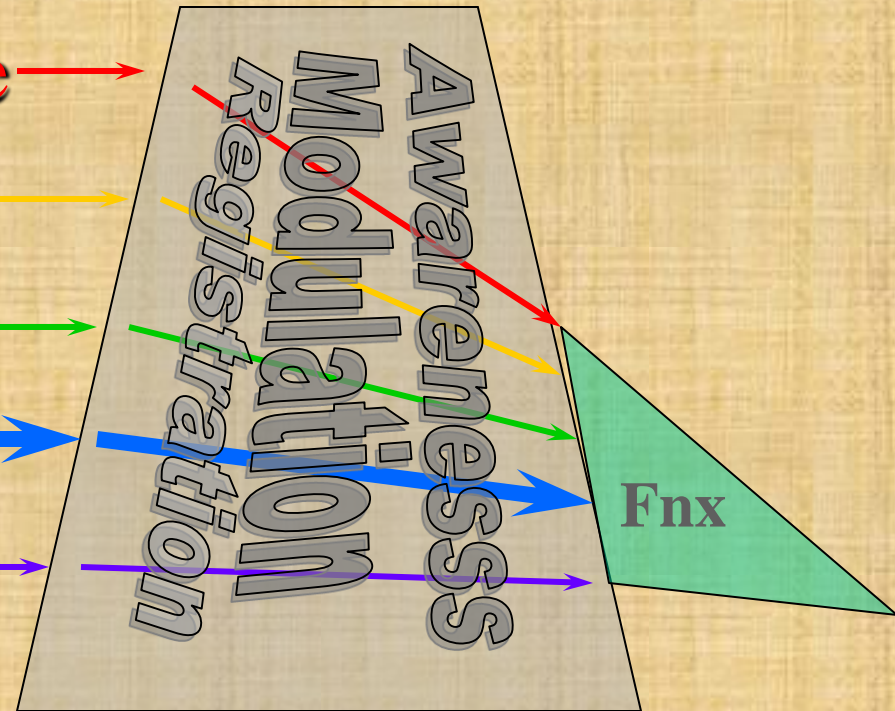
- Tactile/Proprioceptive
- Vestibular
- Visual
- Auditory
- Olfactory/Oral



**PRISM**

# Sensory Processing causing avoidant behaviours

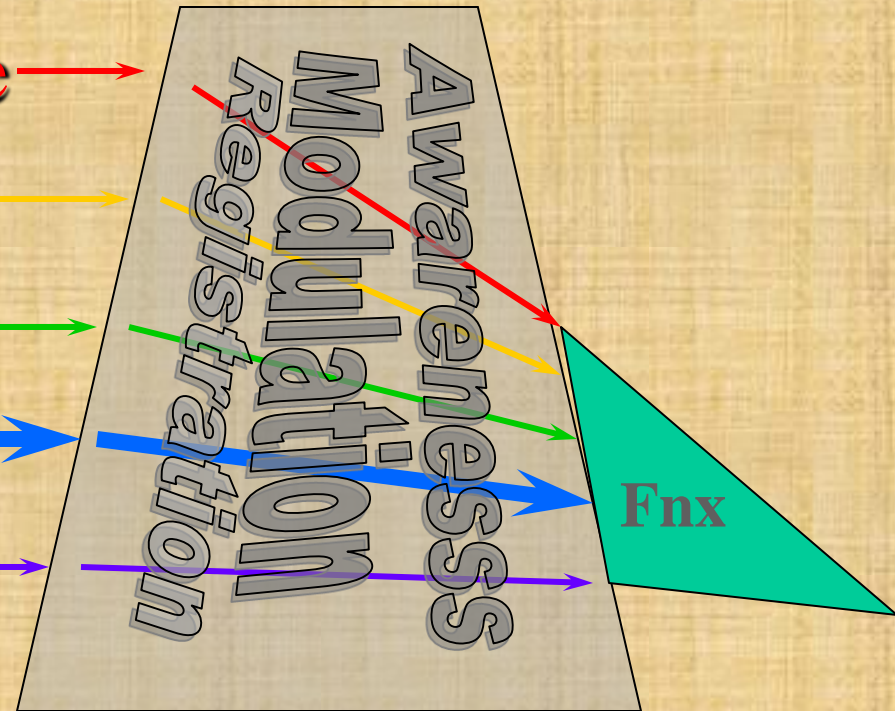
- Tactile/Proprioceptive
- Vestibular
- Visual
- **Auditory**
- Olfactory/Oral



**PRISM**

# Sensory Information causing extreme distress behaviours

- Tactile/Proprioceptive
- Vestibular
- Visual
- **Auditory**
- Olfactory/Oral



**PRISM**



# Sensory Processing causing seeking behaviours

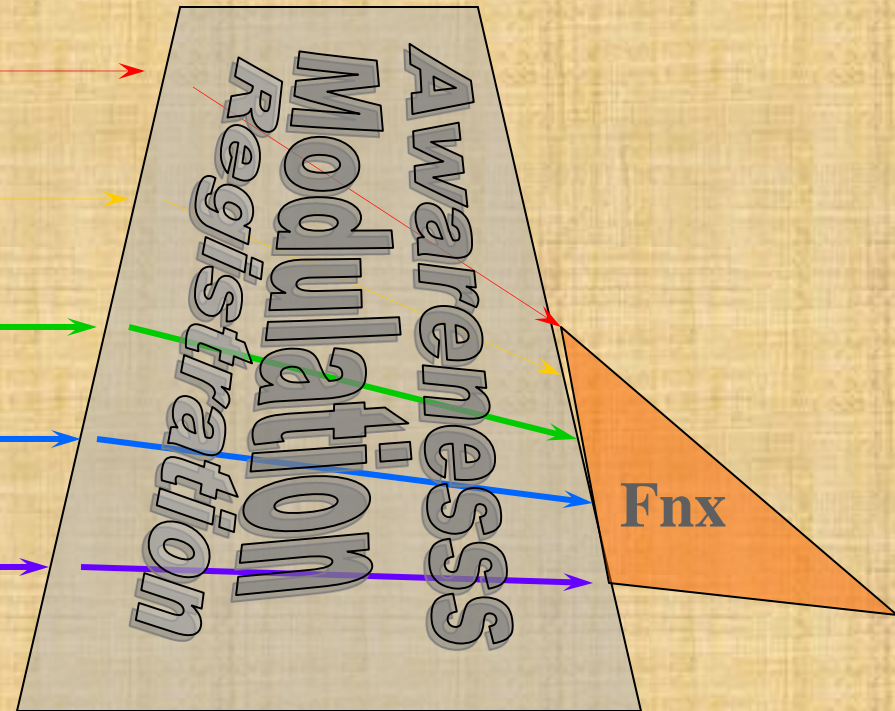
- Tactile/Proprioceptive

- Vestibular

- Visual

- Auditory

- Olfactory/Oral

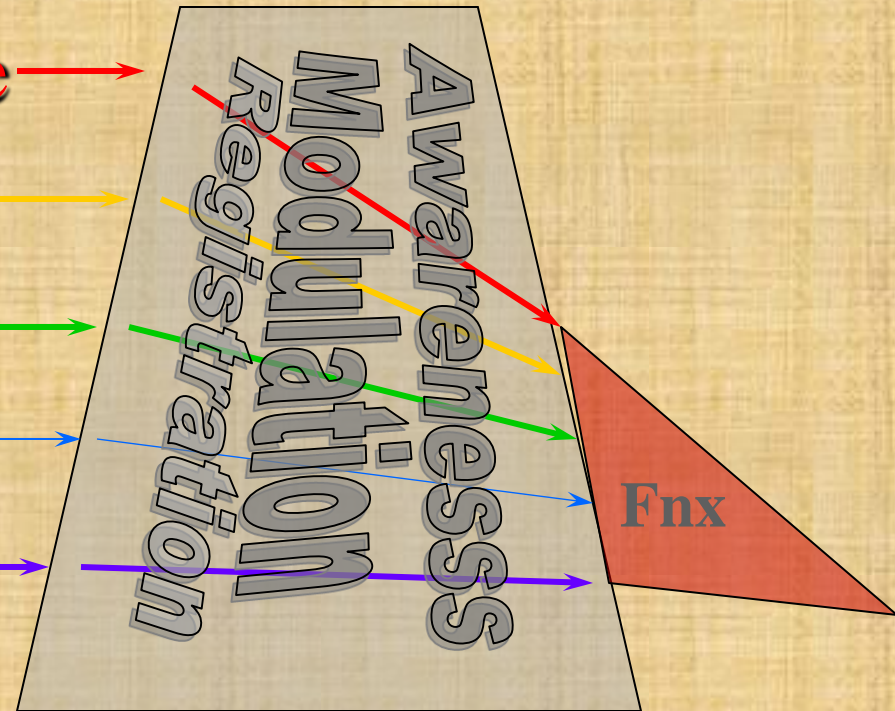


**PRISM**



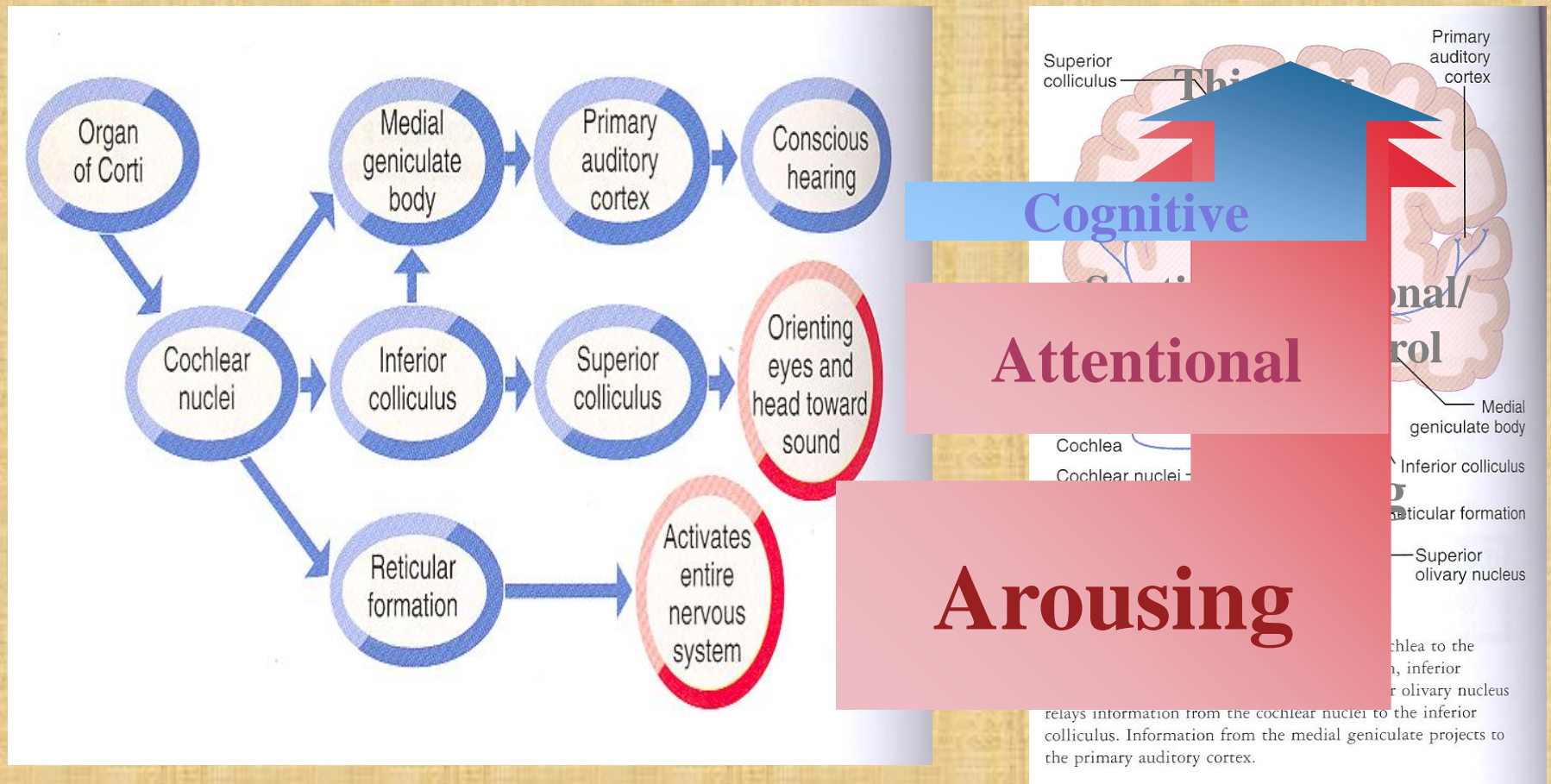
# Sensory Processing causing substitute behaviours

- Tactile/Proprioceptive
- Vestibular
- Visual
- Auditory
- Olfactory/Oral



**PRISM**

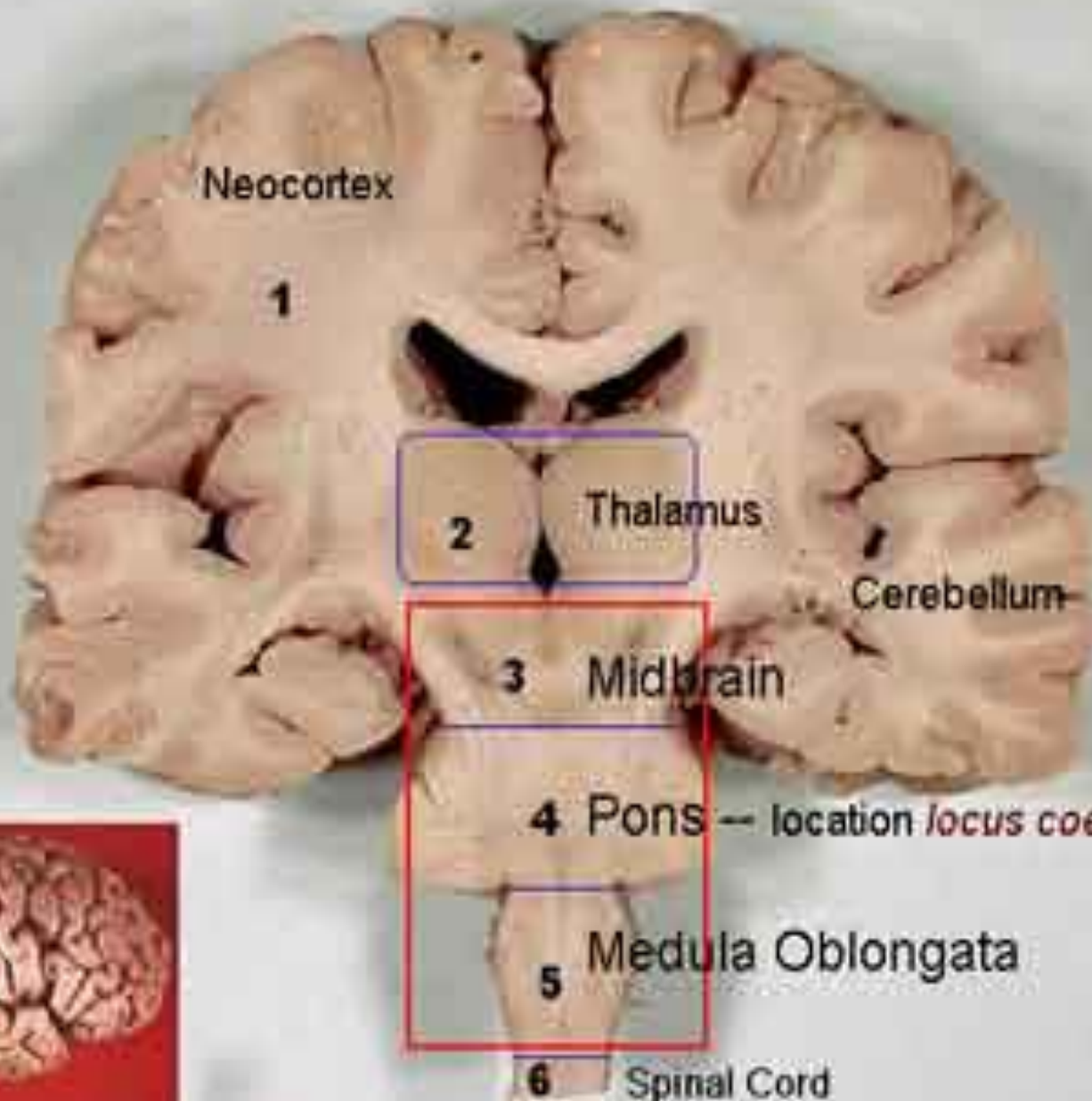
# BRAIN SYSTEMS



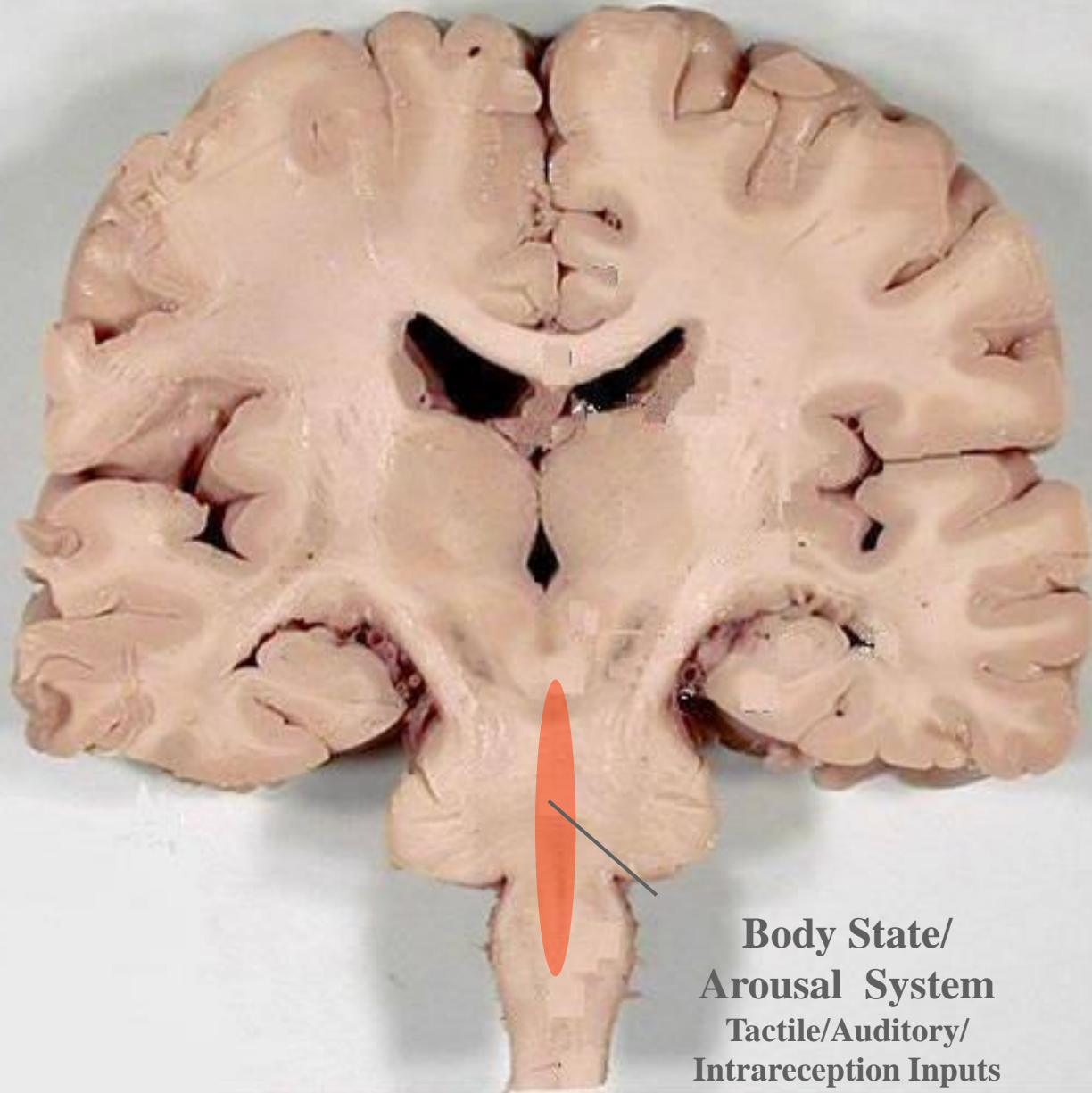
Laurie Lundy-Ekman (2007) Neuroscience Fundamentals for Rehabilitation Chapter 13, P.356







# Body State Arousal System



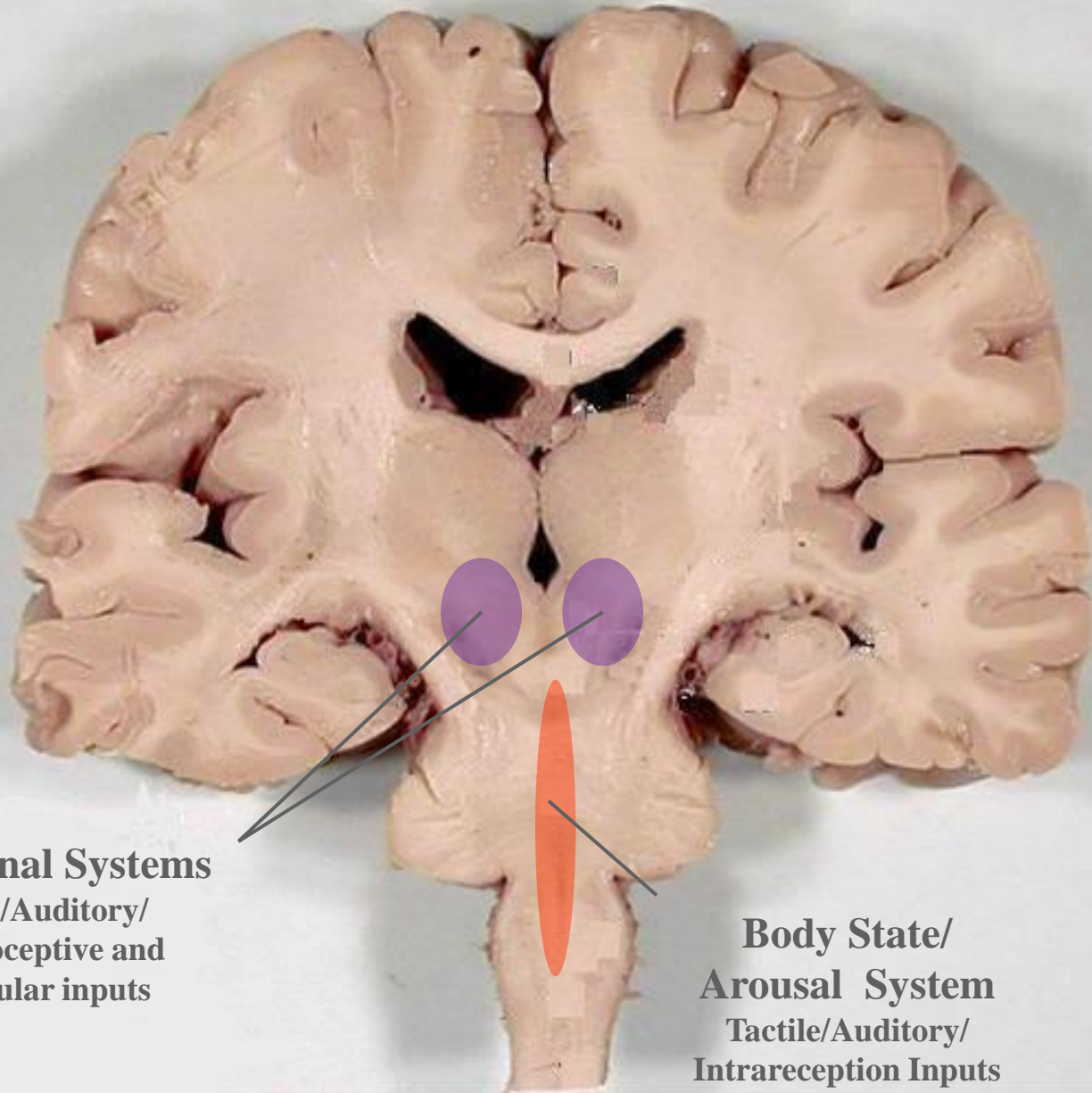
**Body State/  
Arousal System  
Tactile/Auditory/  
Intrareception Inputs**

# Body State Arousal System

- Can Amplify signals.
- Has Strong arousal consequences
- Supplied by tactile sensory pathways.
- Is linked to pain systems
- Processes interoception, and affects arousal by this route also.



# Attentional System

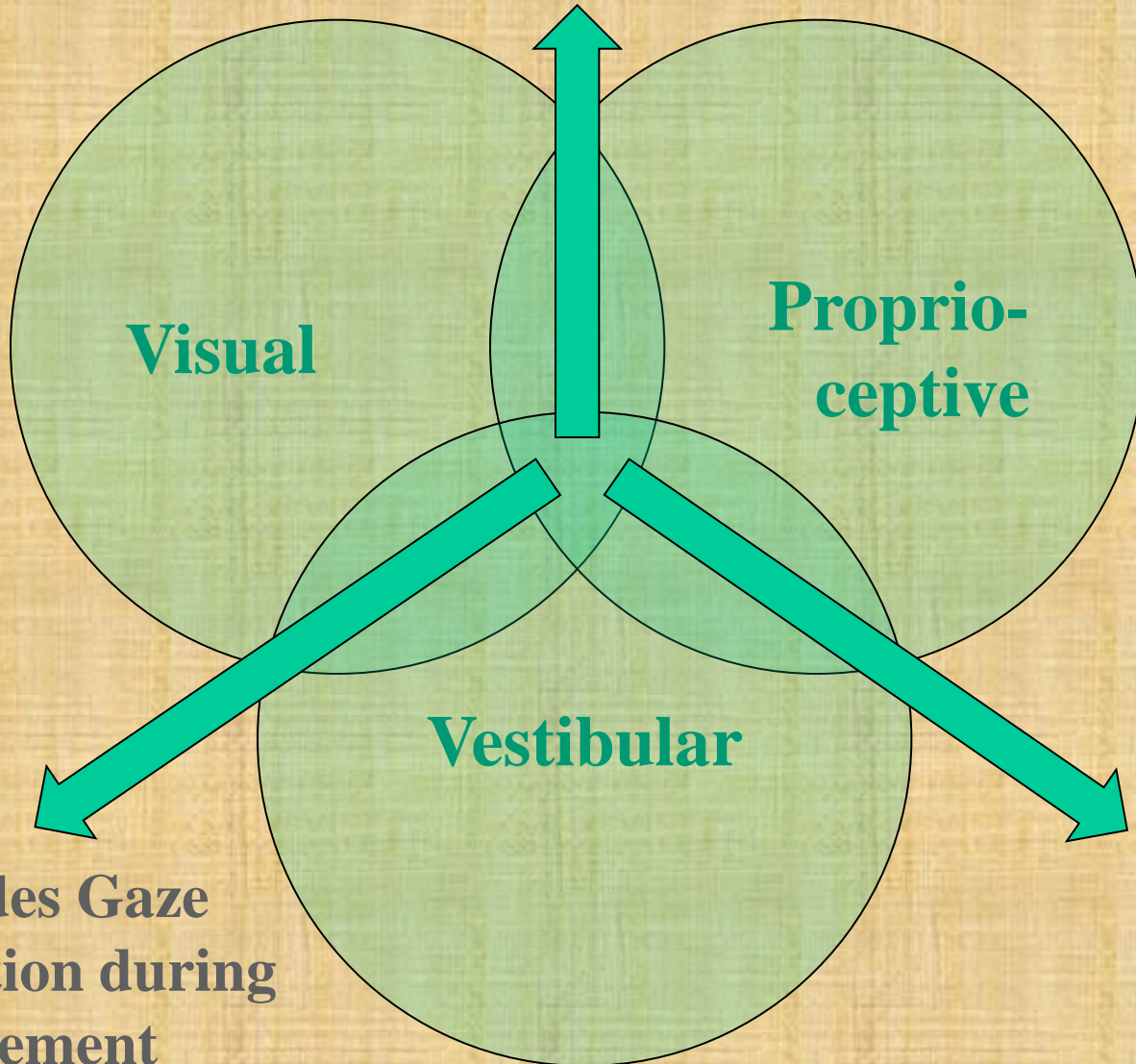


### **Attentional Systems**

Visual/Auditory/  
Proprioceptive and  
Vestibular inputs

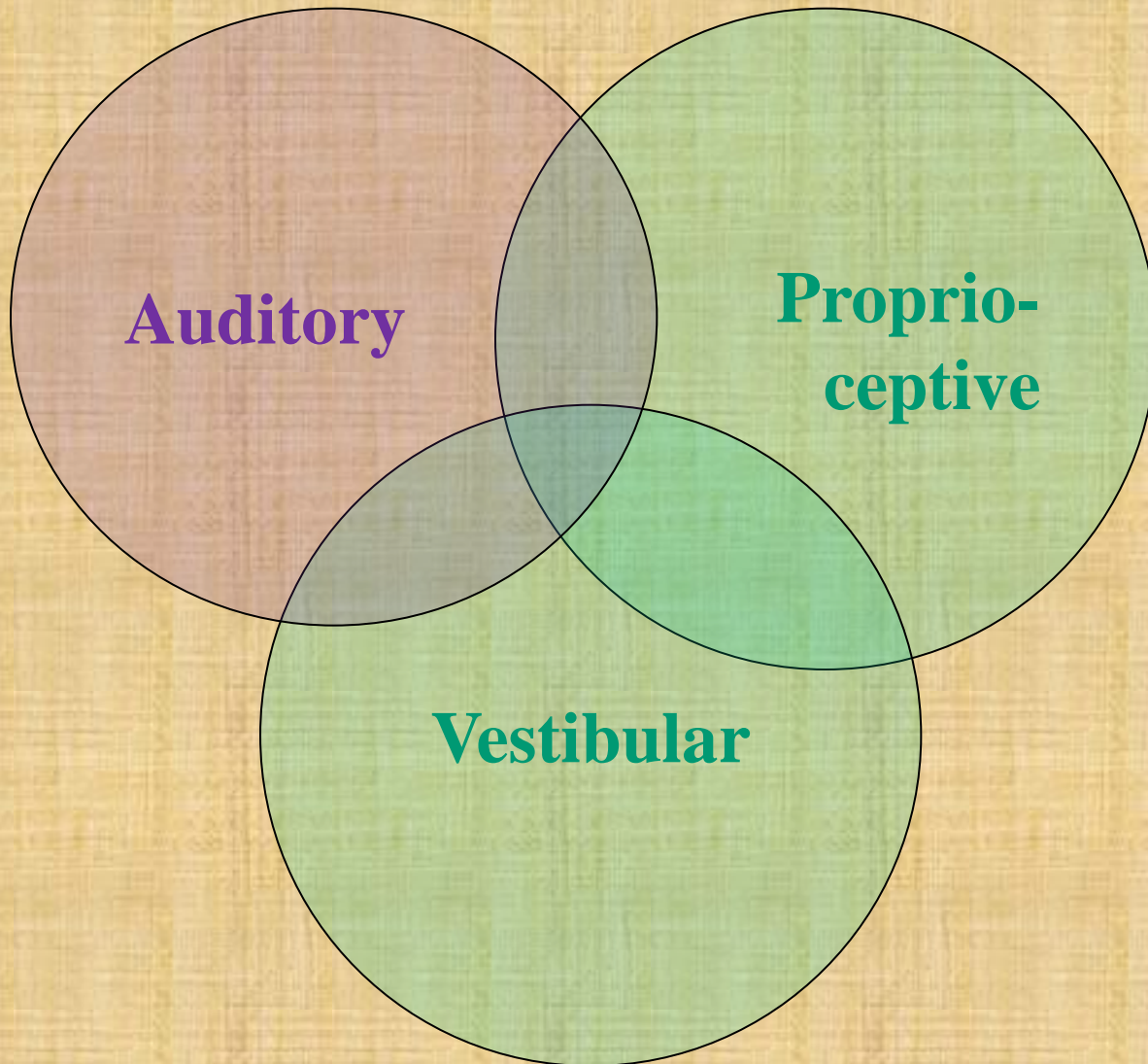
**Body State/  
Arousal System**  
Tactile/Auditory/  
Intrareception Inputs

**Provides Occulomotor Control  
& Develops Depth Perceptions**

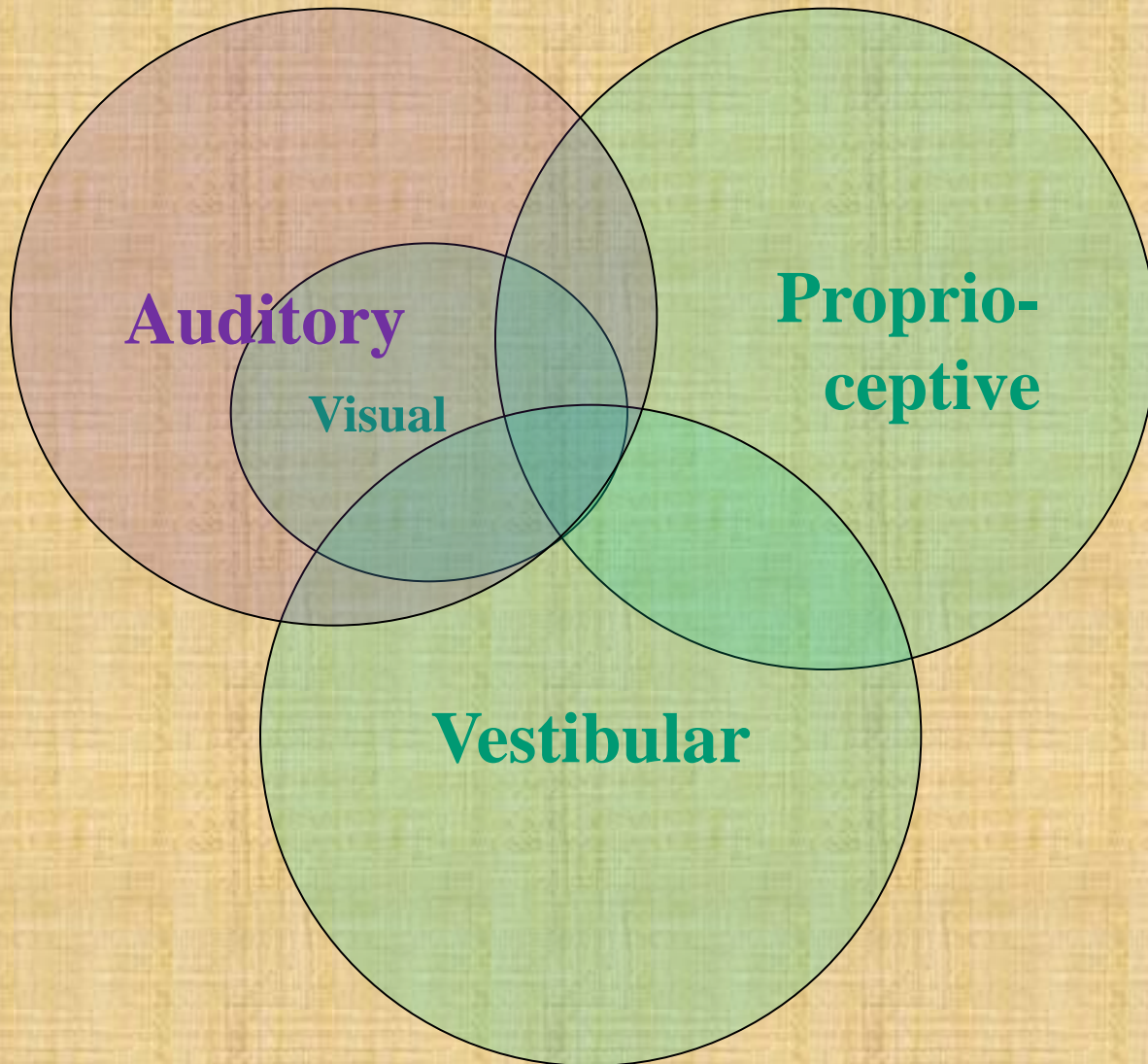


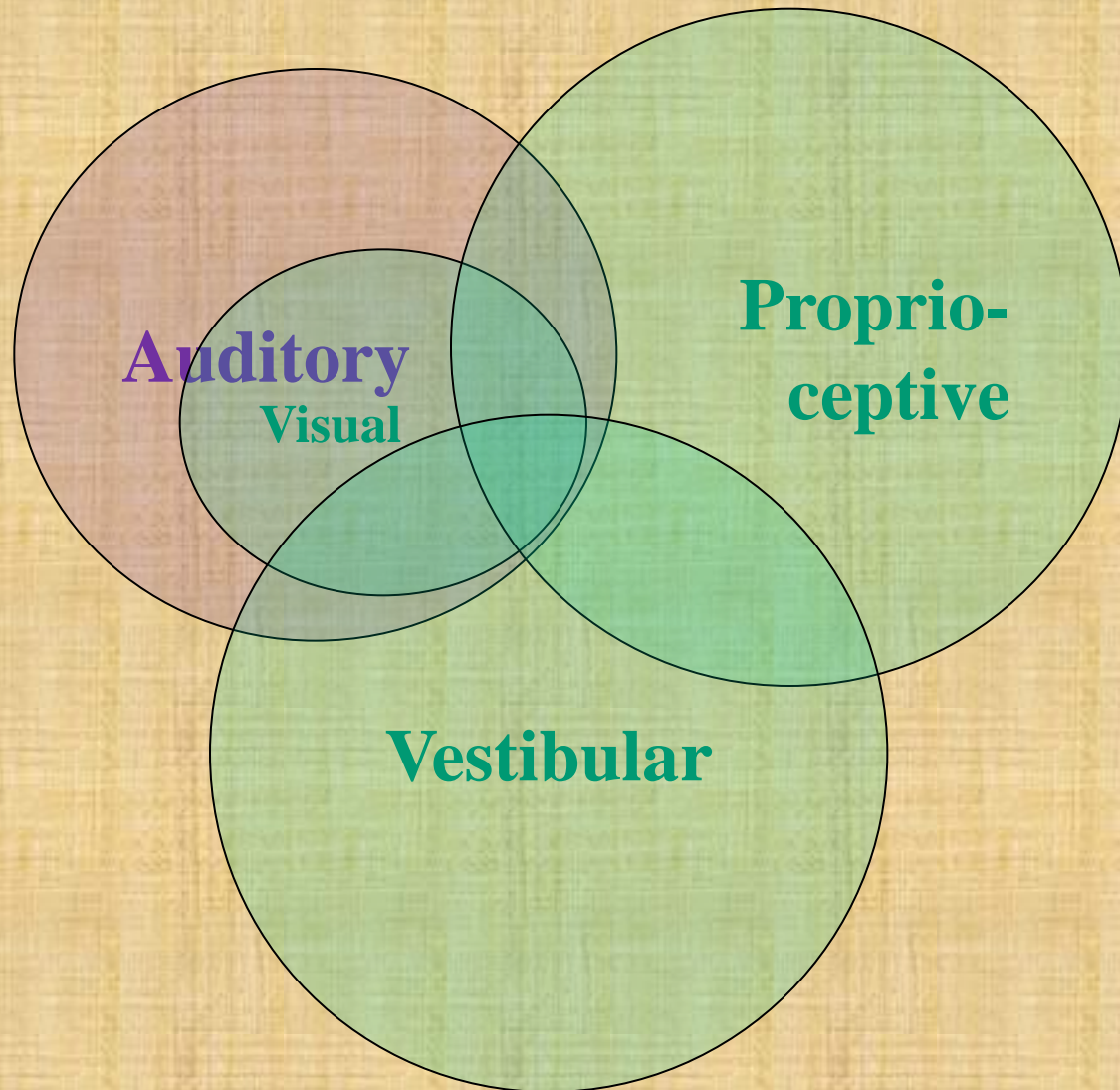
**Provides Gaze  
stabilisation during  
movement**

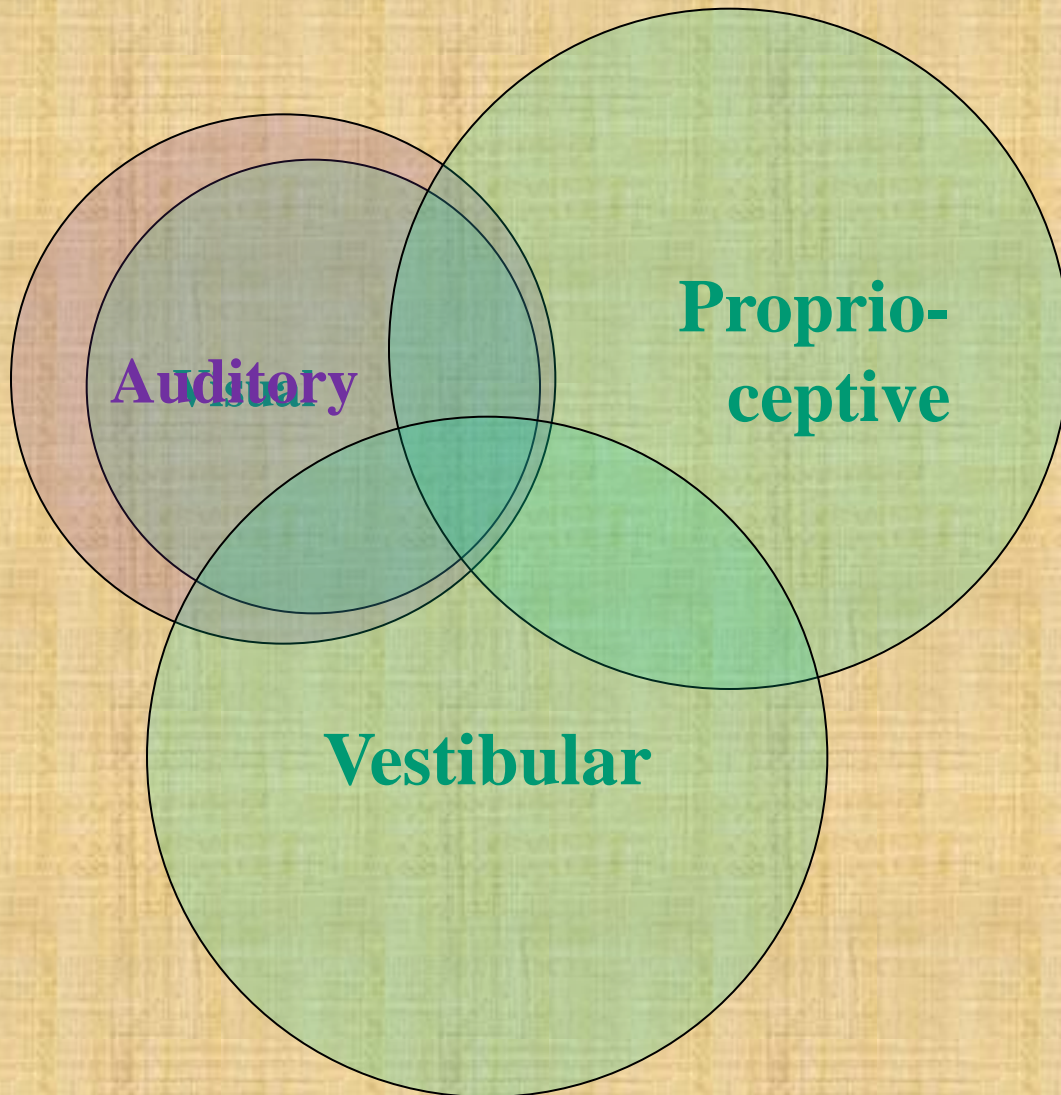
**Provides Head  
and Neck  
Control**



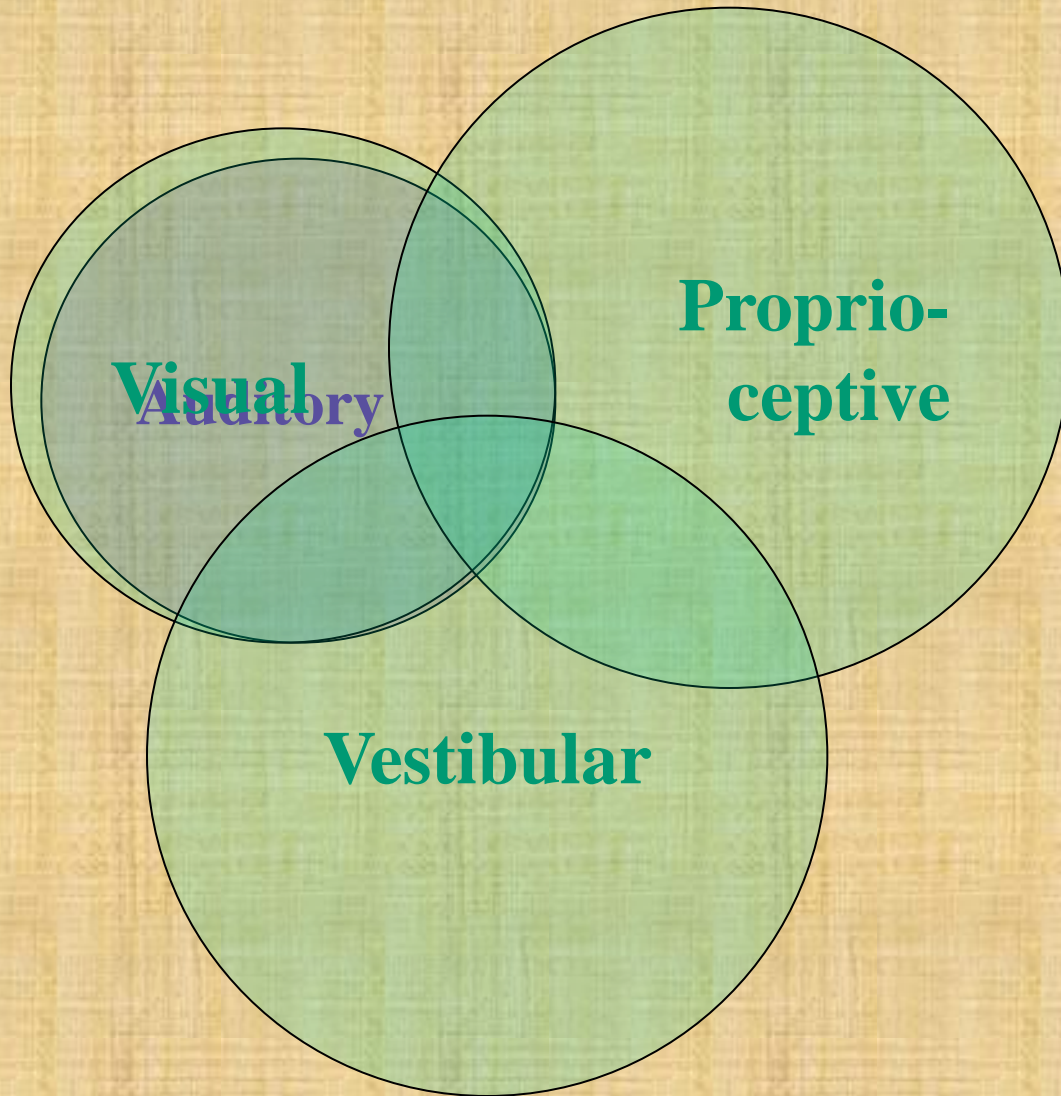




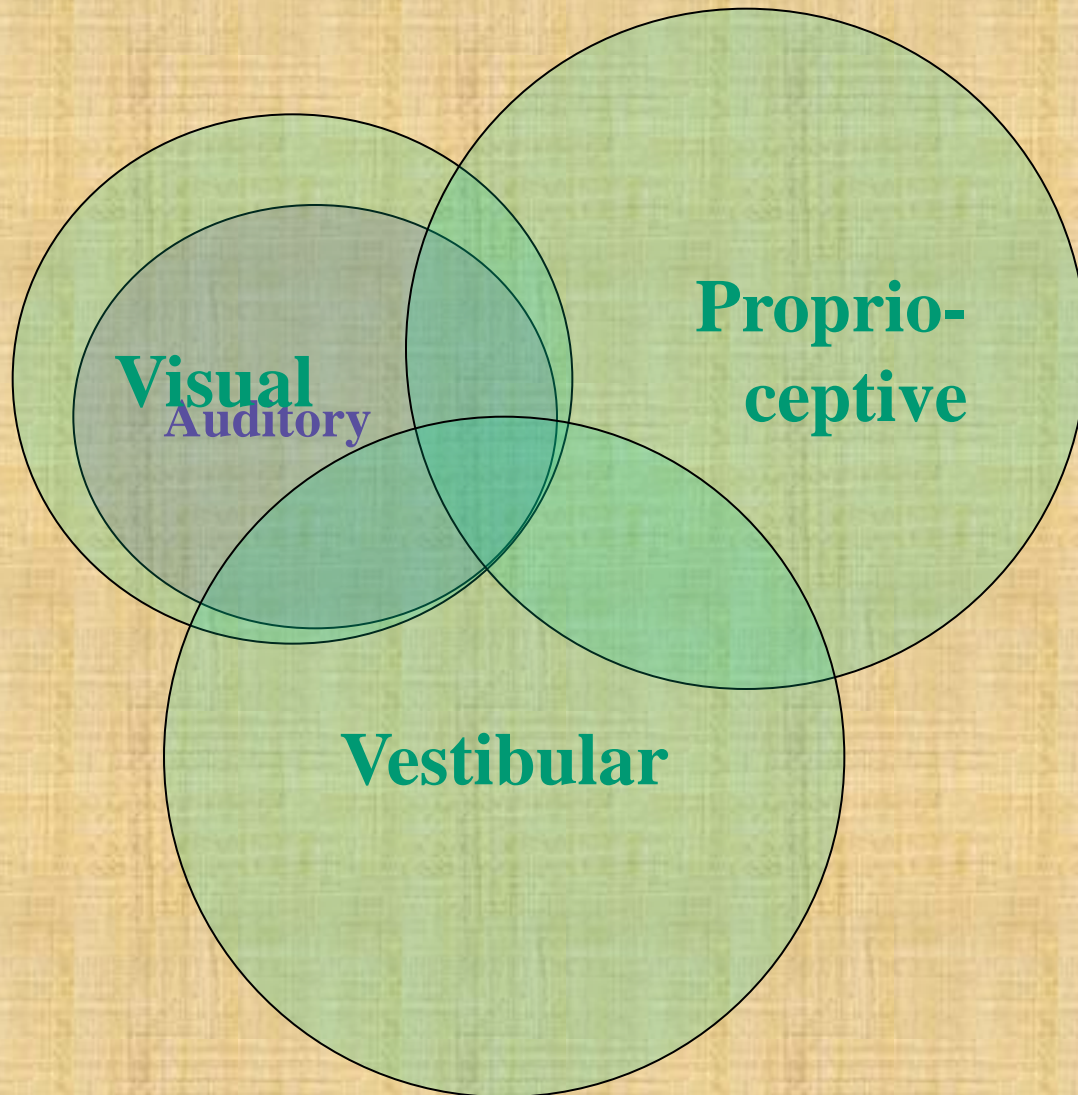


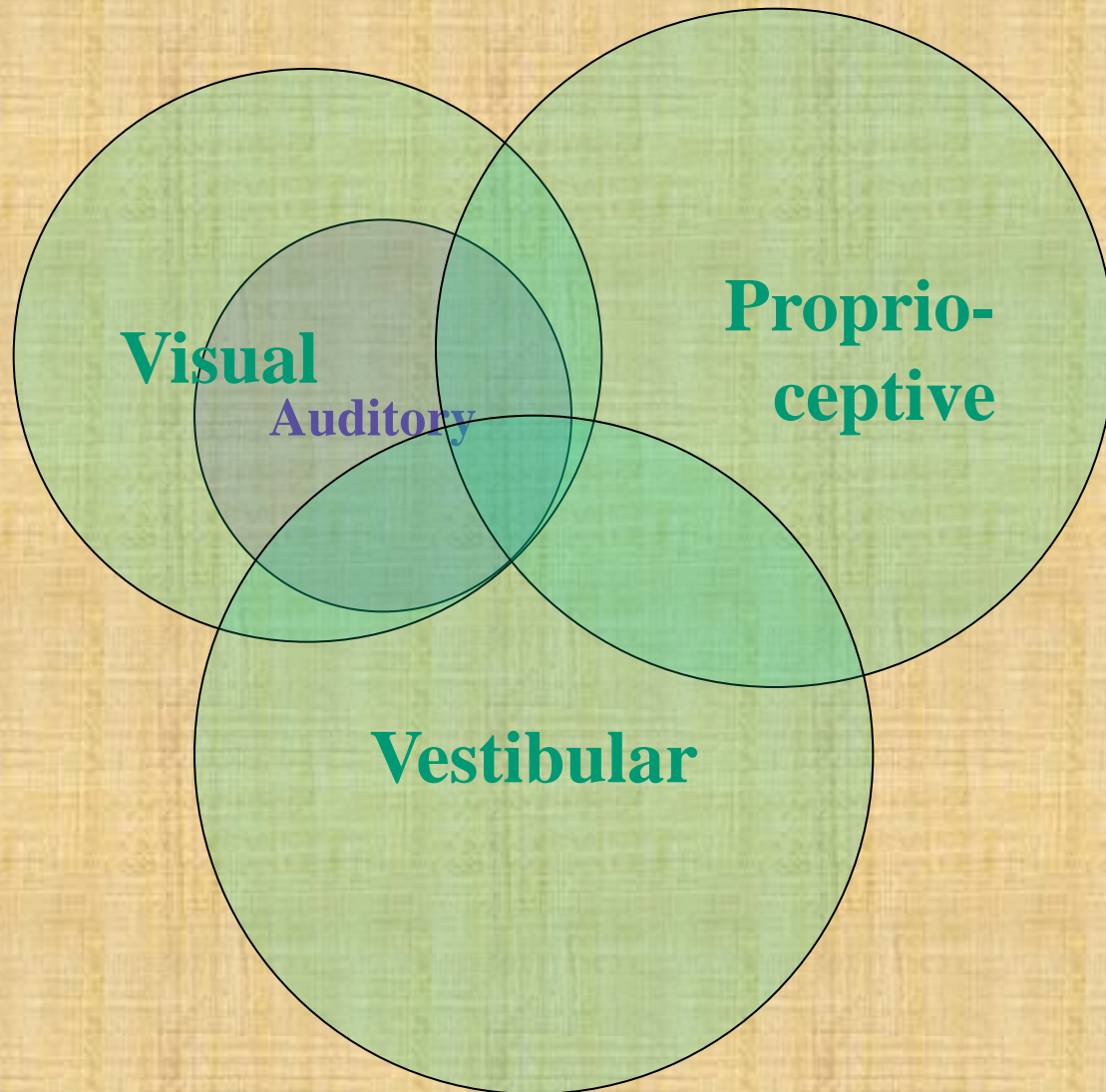


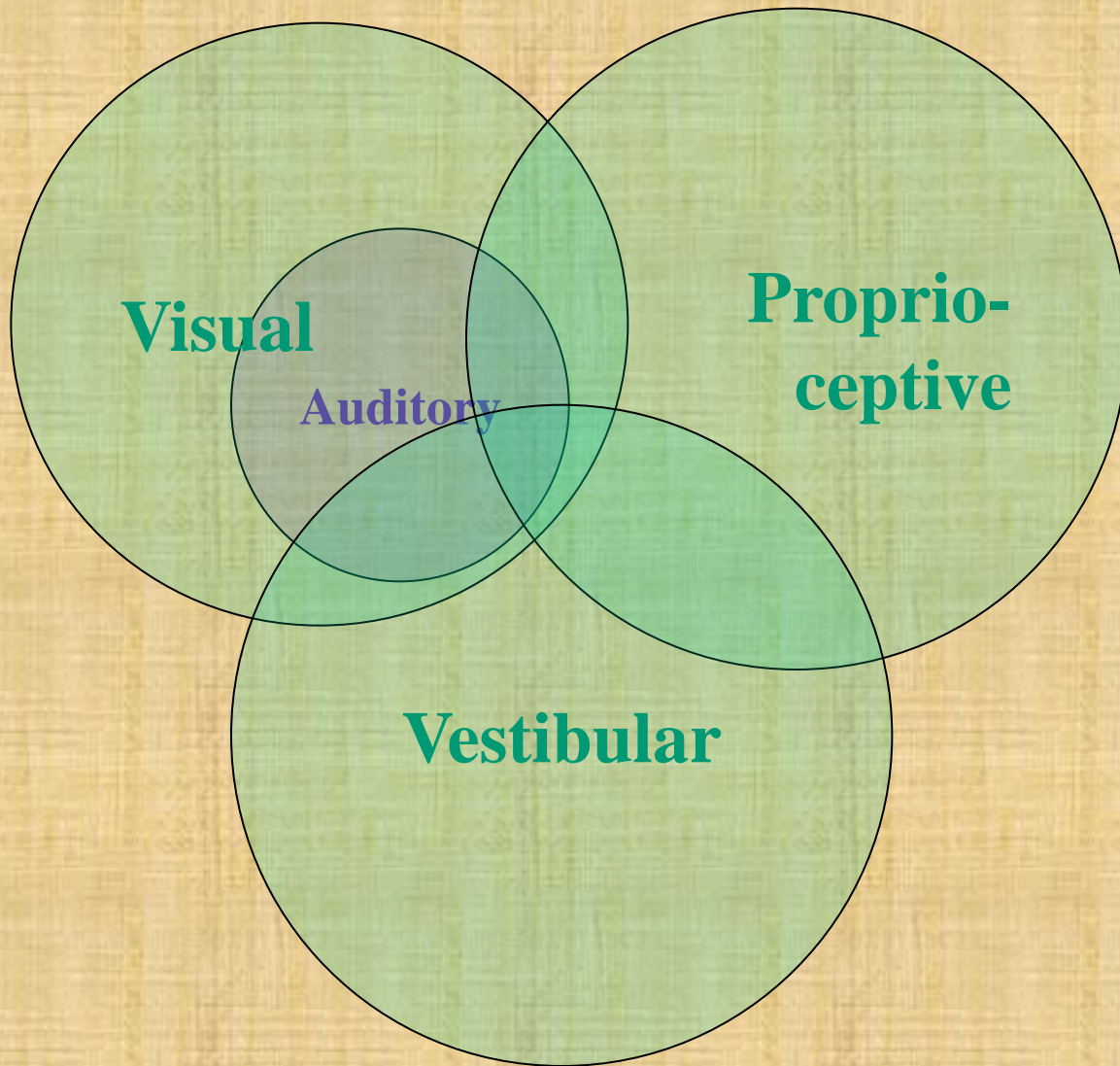


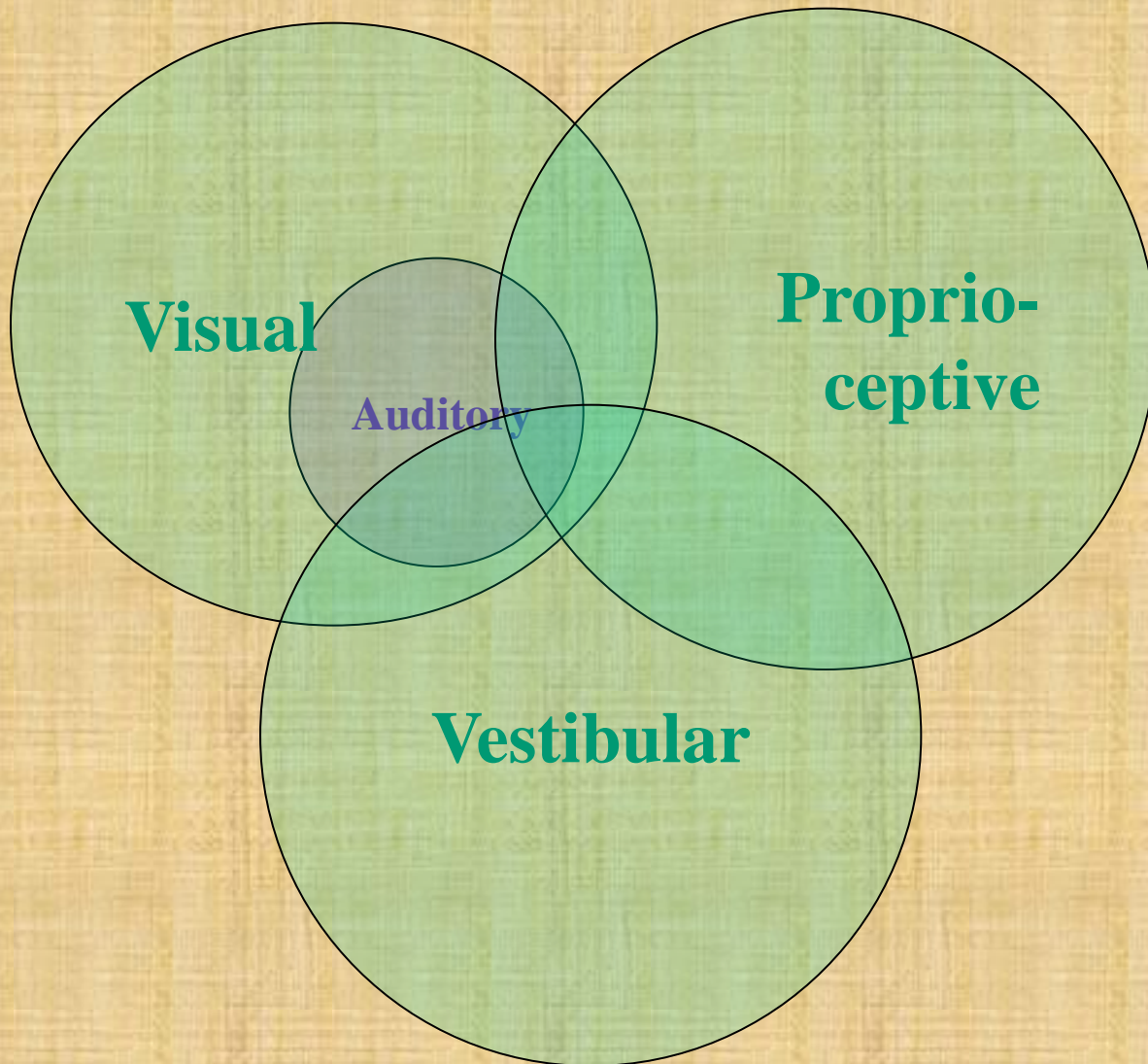




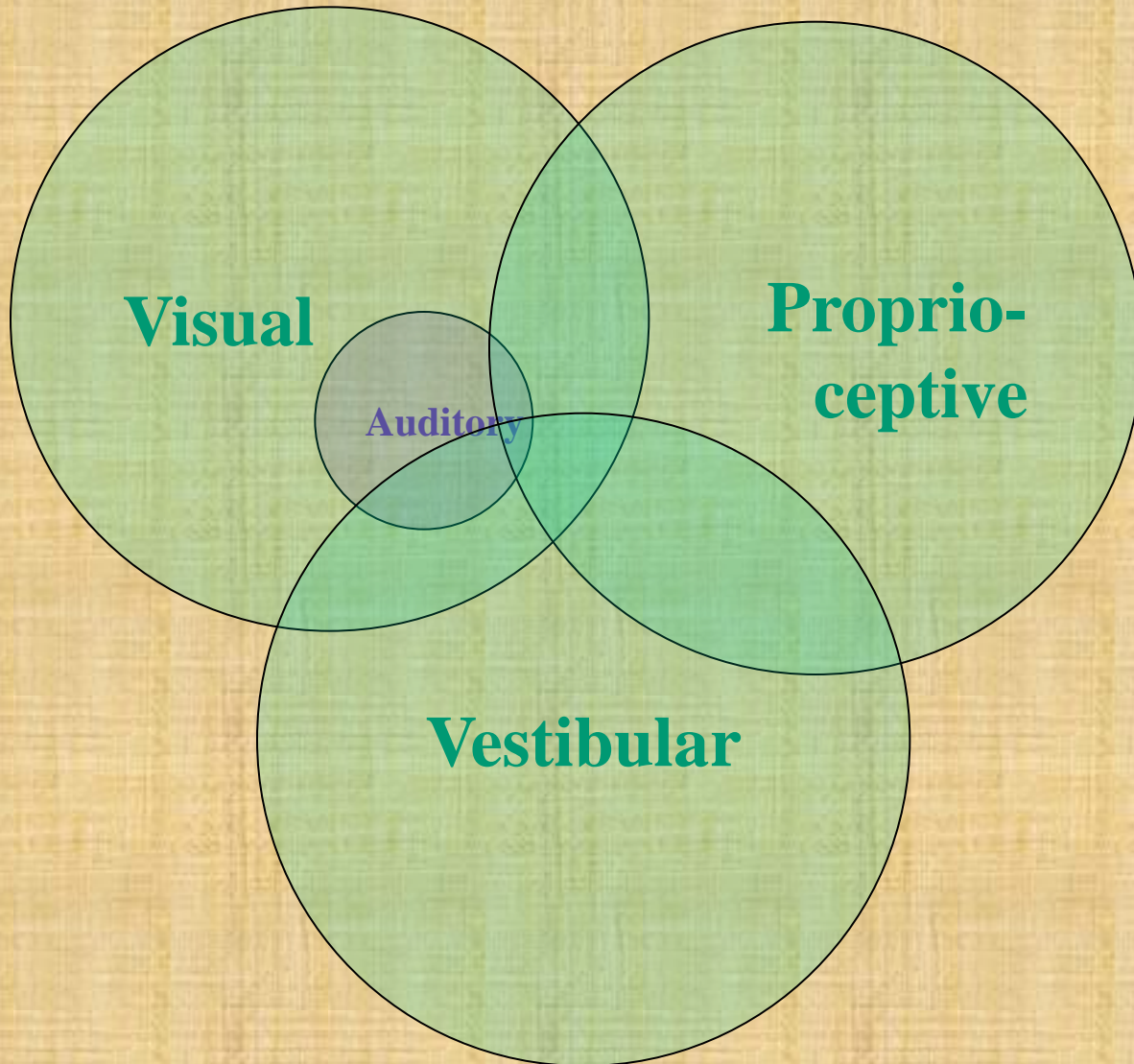












# Attentional System

- Very dynamic
- High levels of sensory integration
- Sensory systems vital for calibration
- Opens up the concept of bodyscheme
  - Bodyscheme exists where proprioception integrates with another sense
- Slow to develop but fast once established
- Has to perform well during high arousal

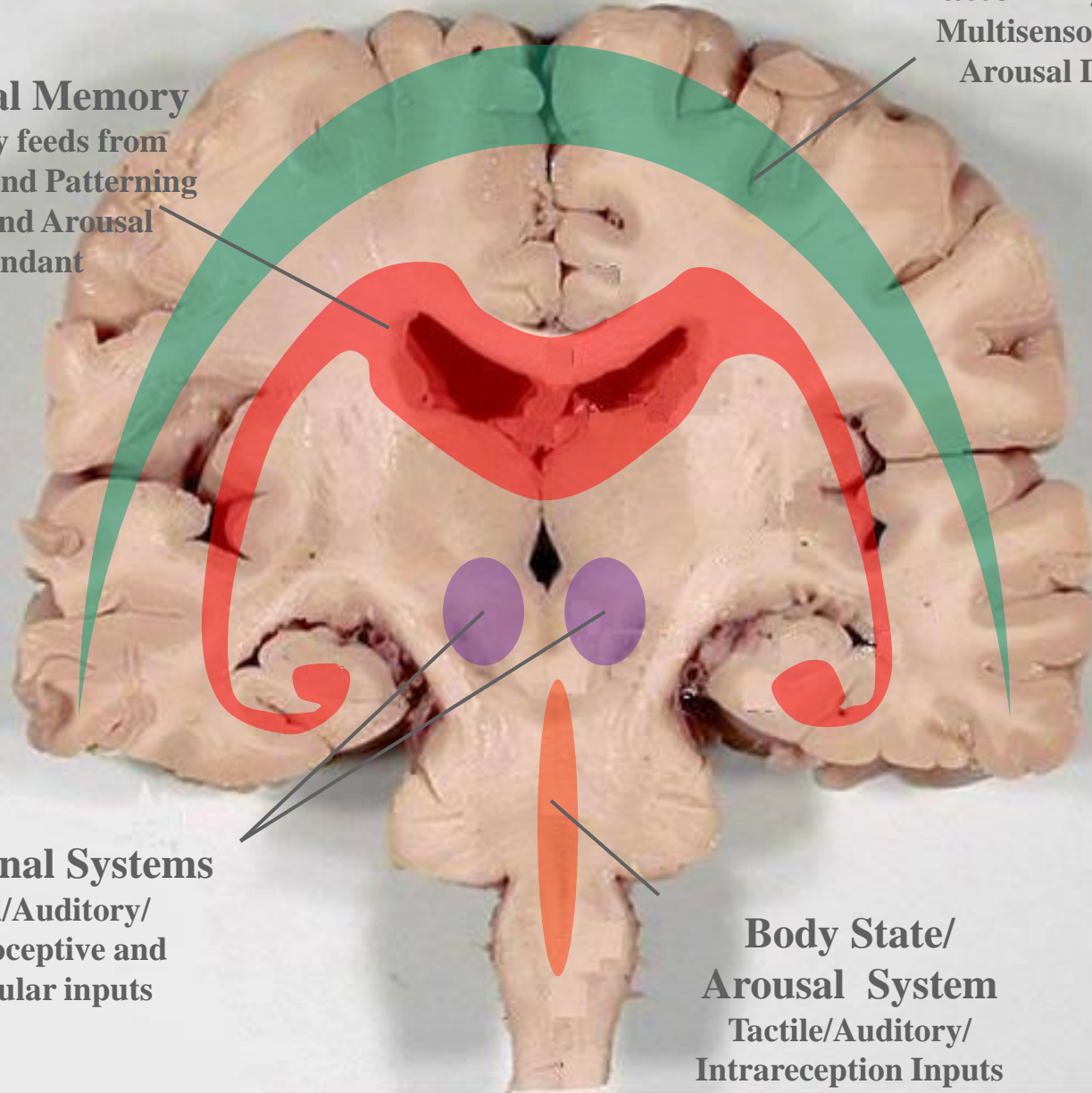
# Memory / Patterning and Cognitive Systems

**Patterning Memory**  
Multisensory Complex  
Arousal Dependant

**Situational Memory**  
Formed by feeds from  
Attentional and Patterning  
Systems and Arousal  
Dependant

**Attentional Systems**  
Visual/Auditory/  
Proprioceptive and  
Vestibular inputs

**Body State/  
Arousal System**  
Tactile/Auditory/  
Intrareception Inputs





# Memory / Patterning and Cognitive Systems

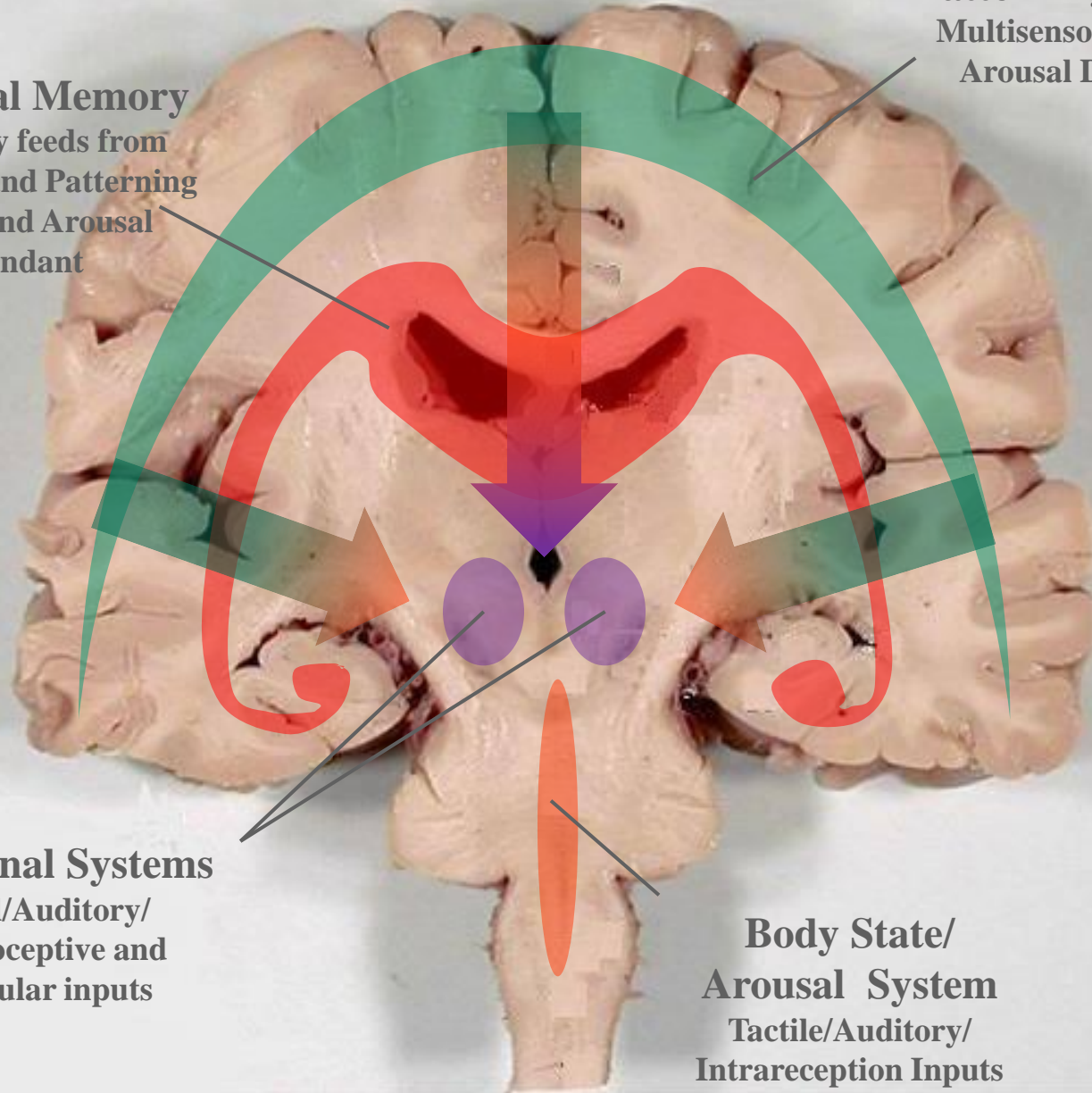
- Slower but more sophisticated processing
- Need optimum arousal to work
- Act to direct attentional systems on the basis of previous experiences

**Patterning Memory**  
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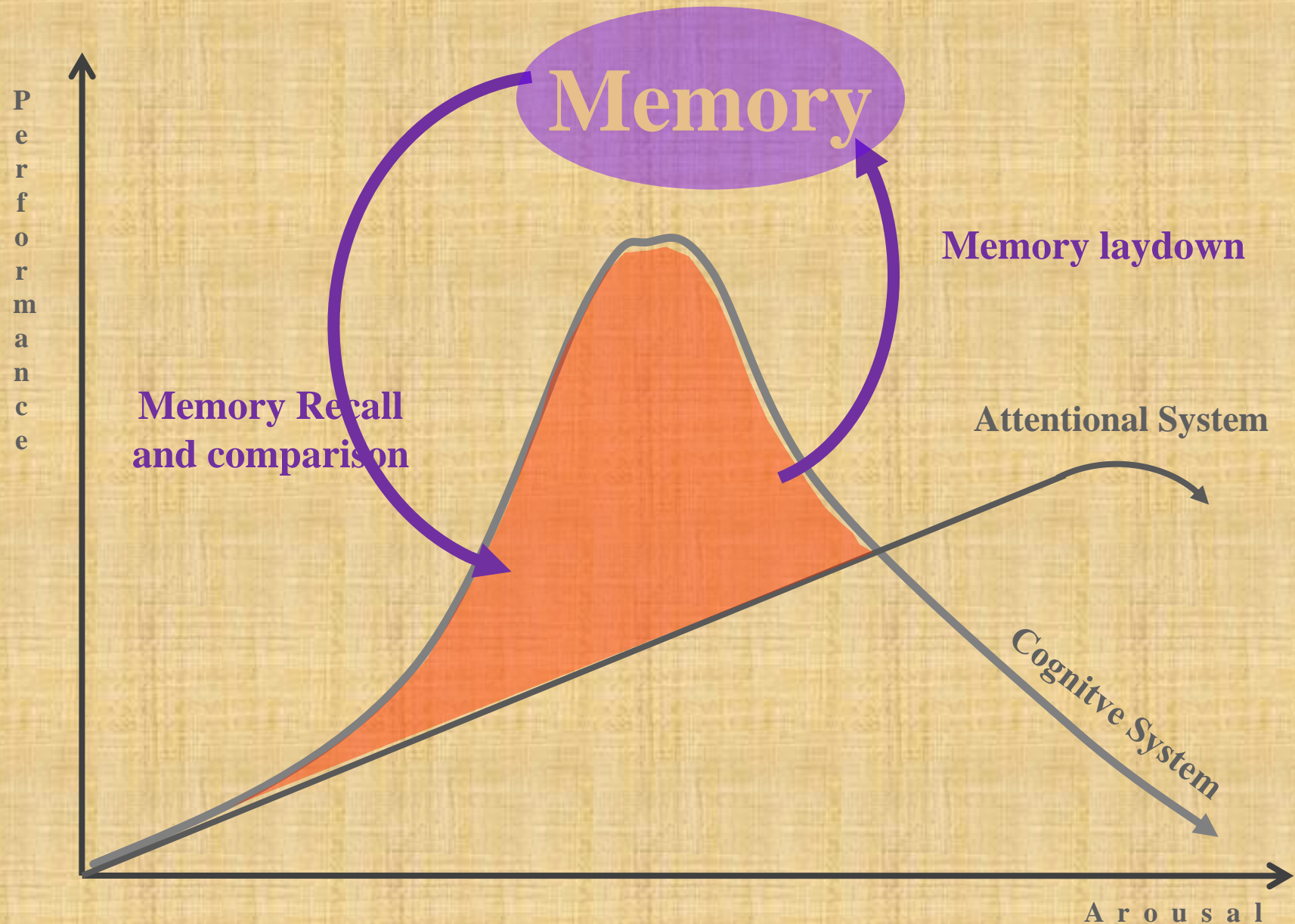


# Memory / Patterning and Cognitive Systems

- Slower but more sophisticated processing
- Need optimum arousal to work
- Act to direct attentional systems on the basis of previous experiences
- Are dependant on good quality sensory systems to achieve good pattern recognition
- Tag emotions to experiences



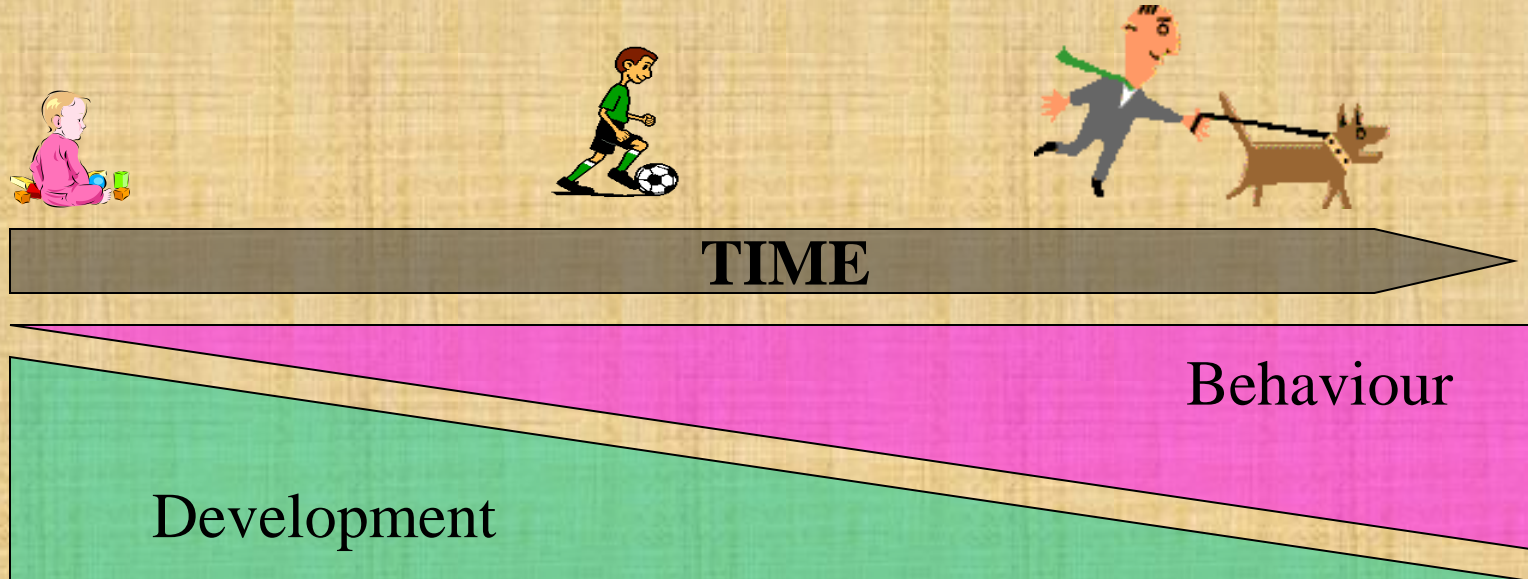
# Sensory Processing/Modulation/Learning Model





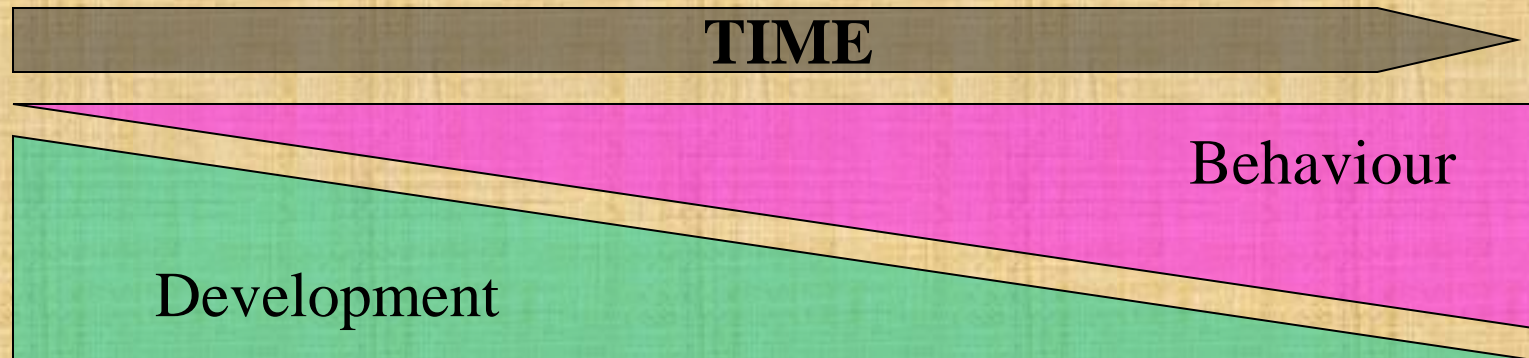
# Sensory Integration as a Developing Continuum

- Behaviour is Sensory Integration that has occurred.
- Development is Sensory Integration that is or will occur.



# Sensory Integration as a Continuum

- Behaviour is Sensory Integration that has occurred.
- Development is Sensory Integration that is or will occur.



# Sensory Integrative Dysfunction and the Medical Model

Sensory Integration may play part in, or being the result of, a variety of clinical Presentations.

**Autistic Spectrum Disorders**

**Dyspraxia**

**ADD/ADHD**

**Global Developmental Delay**

**Learning Disabilities**

**Cerebral Palsy**

**It is not currently considered a diagnosis.**

**It does have it's own unique expressions that may be more meaningful than an overall.**

# Sensory Integration and School

- Extreme behaviour may be signalling a developmental need, or a sensitivity.
- Meeting sensory needs prior to a learning experience may improve skills acquisition.
- Influencing arousal levels correctly will improve learning.
- Development occurs best, when problem behaviours have been diffused or channeled.



# Sensory Integration and Families

- A child with difficulties may present from normal to having a “heavy” diagnosis.
- A child with difficulties may be identified as having behavioural issues and often does.
- The contract of play in the family may be significantly skewed.
- Parents can’t look to other children and families for advice and inspiration, because it doesn’t work for their child.

# Sensory Integration as Treatment

- As an Insight, for advice and guidance.
- As the baseline for adapting a child's sensory environment.
- As a strategy for achieving behavioural outcomes.
- As the baseline for launching a Sensory Integration developmental intervention.
- As an adjunct to play therapy and understanding family dynamics.

# Any Questions?

