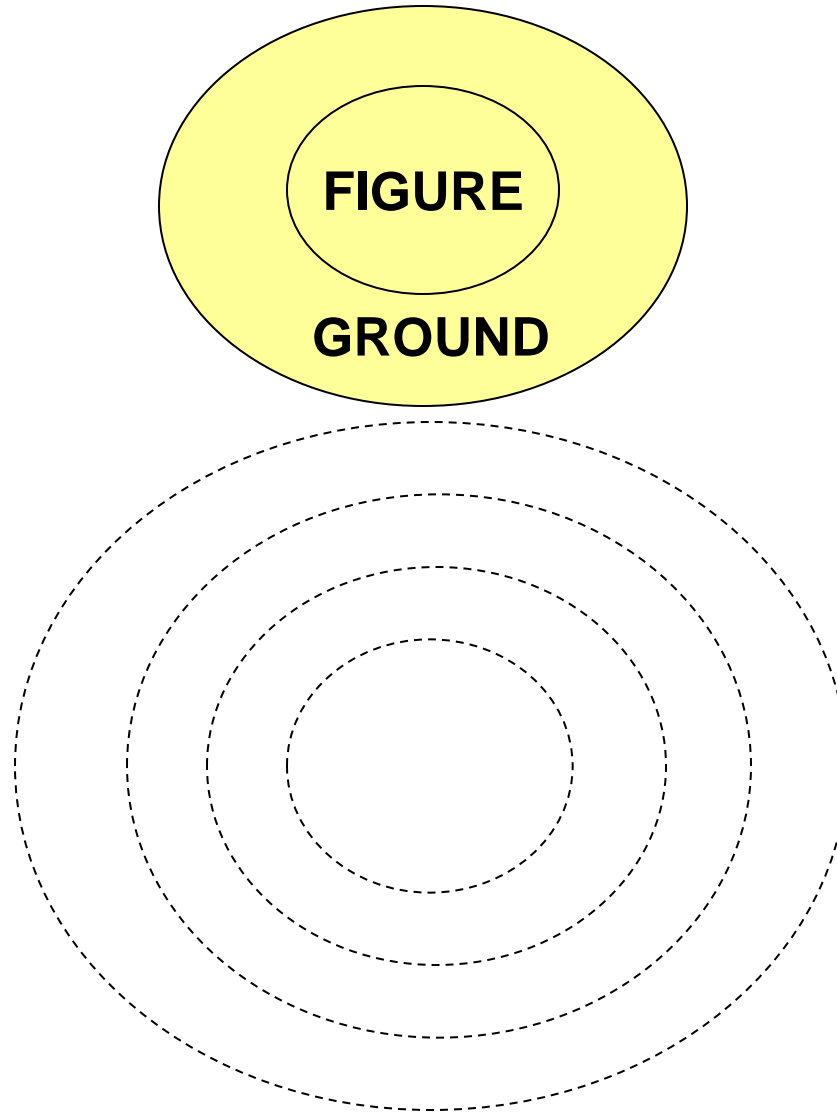


# **The Neurophysiology of Consciousness and Emotions**

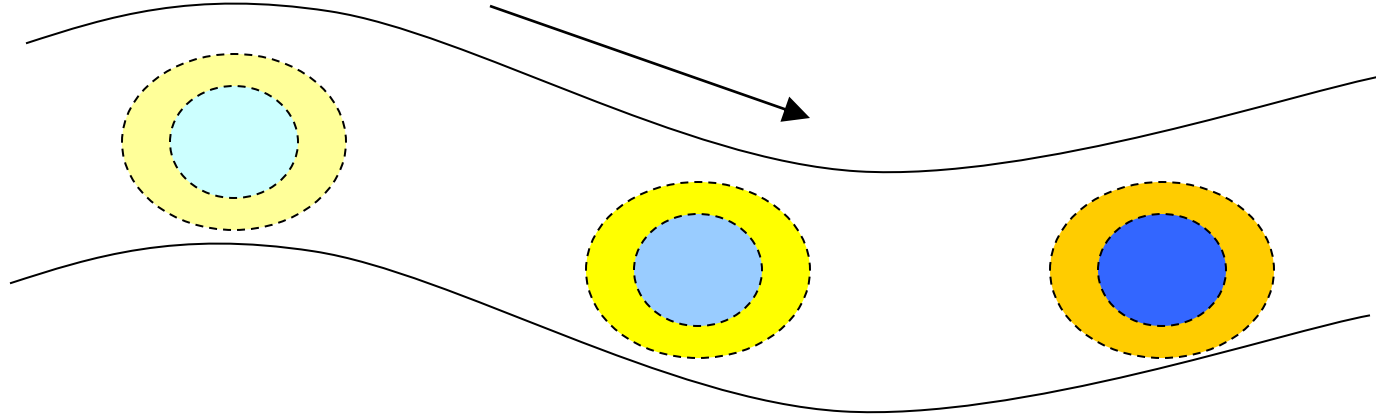
Jerome Liss, M.D.

# The Gestalt Model of Consciousness



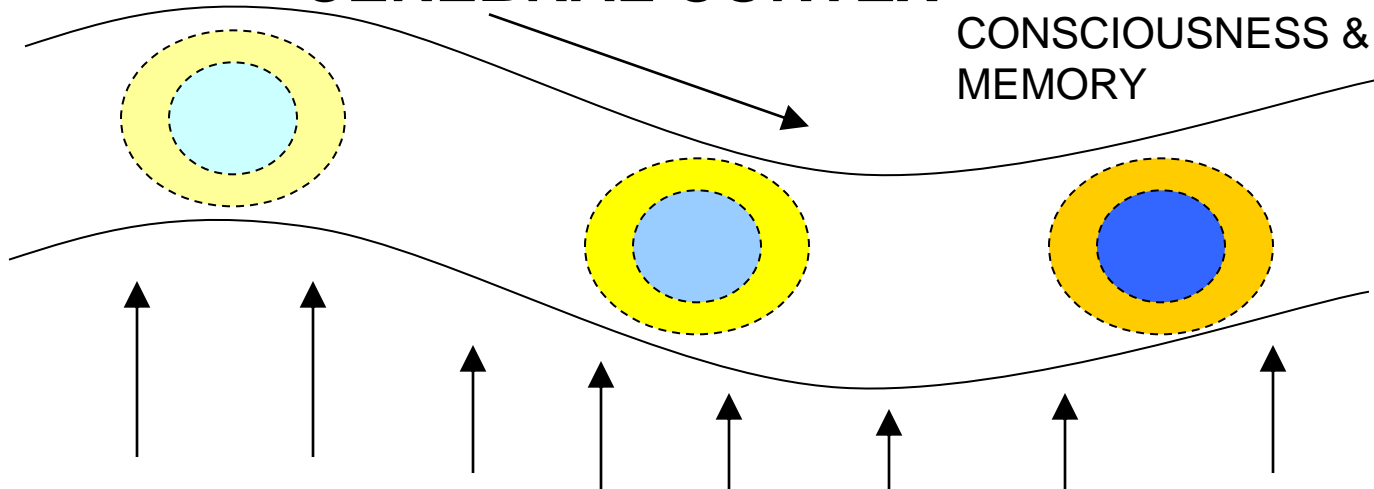
**Degrees of Central Consciousness and Peripheral Consciousness**

# Sequence of Consciousness



## CEREBRAL CORTEX

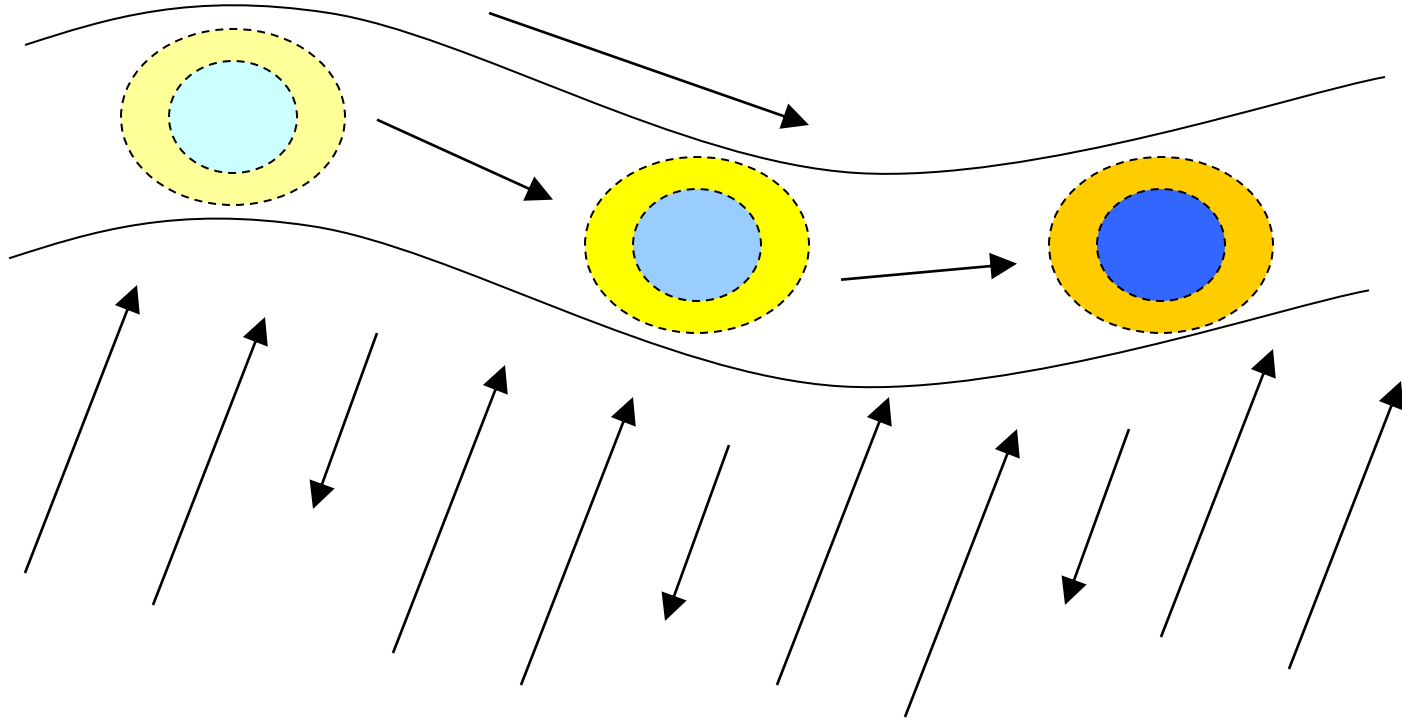
CENTRAL & PERIPHERAL  
CONSCIOUSNESS & WORKING  
MEMORY



**SUBCORTEX** Amygdala, Hippocampus, Basal Ganglia, Thalamus  
Hypothalamus, Central Grey  
Nuclei in the Brainstem (pons & midolla)  
Visceral nuclei (solitary nucleus, dorsal-motor nucleus of the vagus)

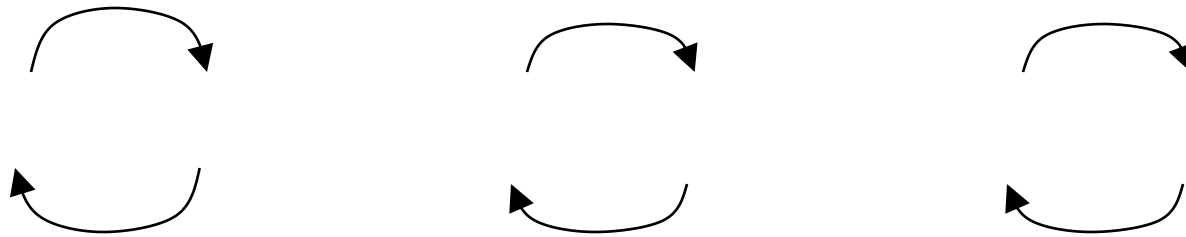
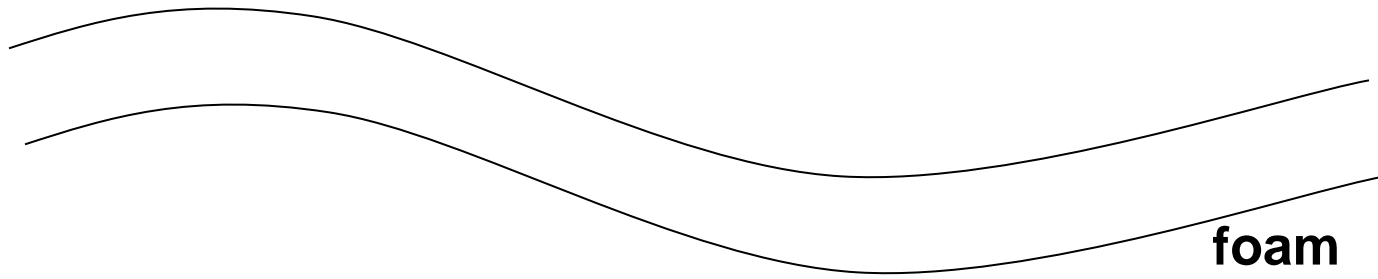
# Unconscious-Conscious Interaction

## Conscious Sequence

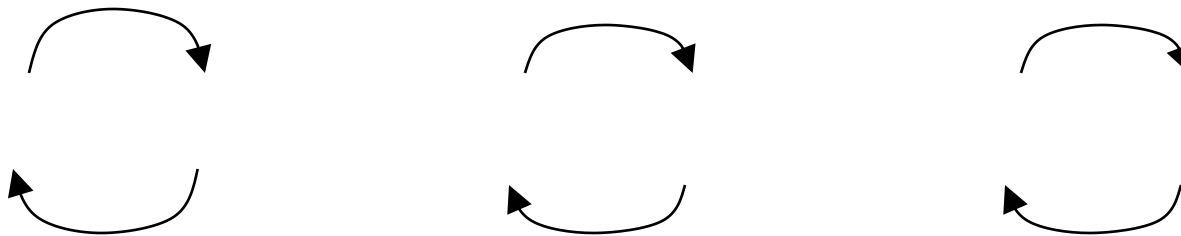


## Physiological Unconscious

Consciousness is like the foam  
that rides on top of the sub-cortical wave

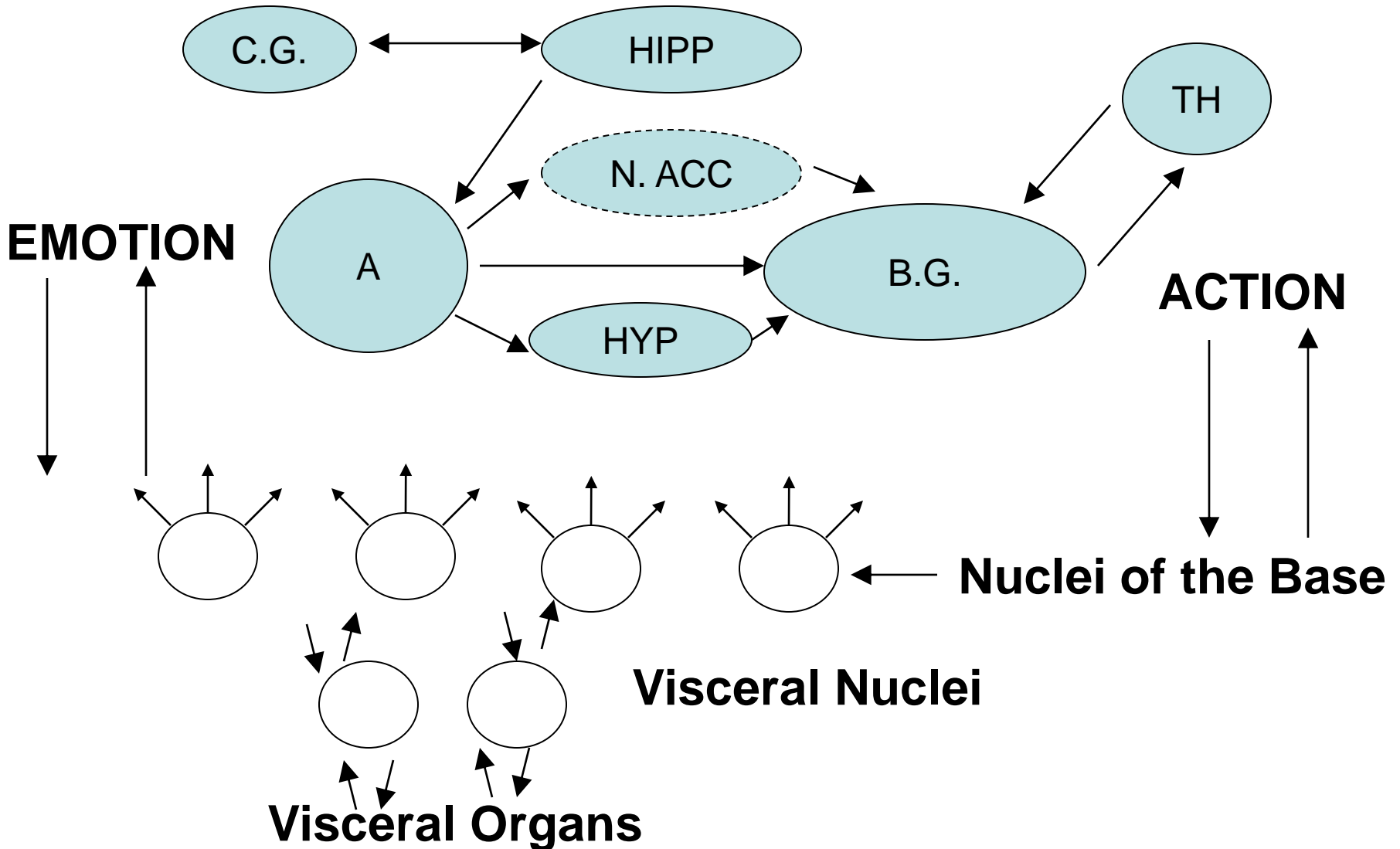


Sub-cortical dynamic & somatic body



# Sub-Cortical Dynamic

(The neurophysiological unconscious)

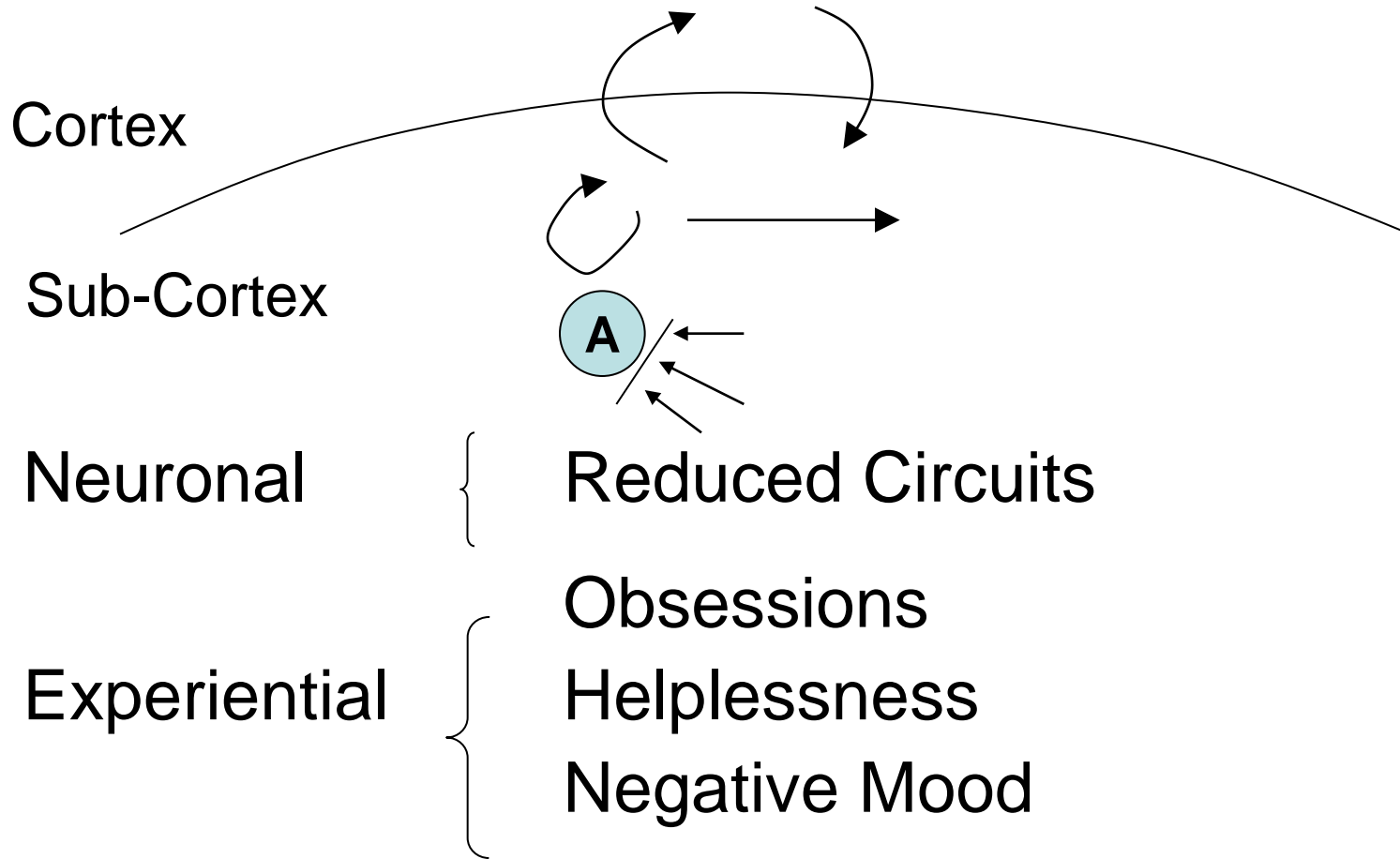


# Nuclei of the Base → Neuromodulators

Edelman: “Value System” or “Activating System”

NUCLEUS	NEURO-MODULATOR	FUNCTION
Tegmentum	Dopamine	Action, reward
Raphe n.	Serotonin	Mood. Self-other contact
Locus coeruleus	Noradrenalin → NMDA	Activation, Alertness
Pendulo-pontine n.	Acetylcholine	Memory learning

# Isolation, Loneliness

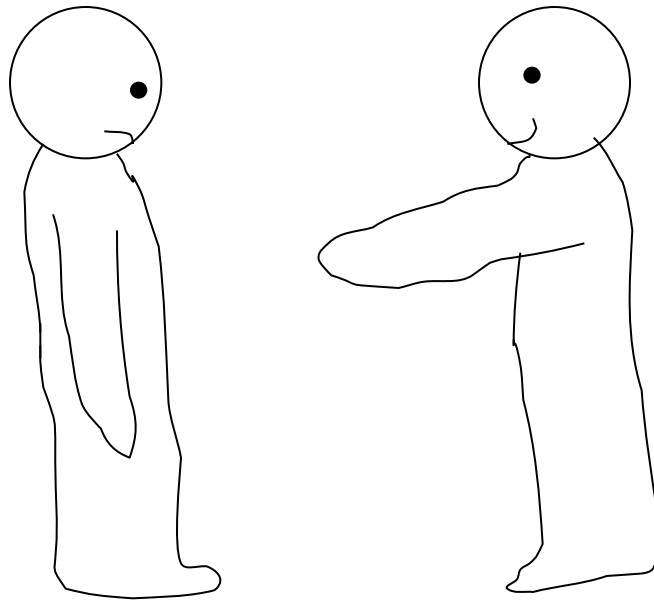


Edelman's terminology: reduction of "reentry" and "distributed processes"

# Psychotherapy



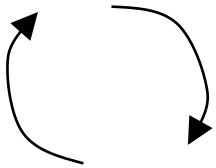
A positive self-other dynamic



# Neuronal Correlators of the Self-Other Dynamic

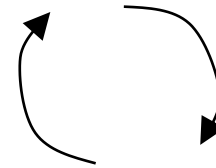
Frontal Lobe

Lateral



Medial-ventral  
Orbito-Frontal

Environ.

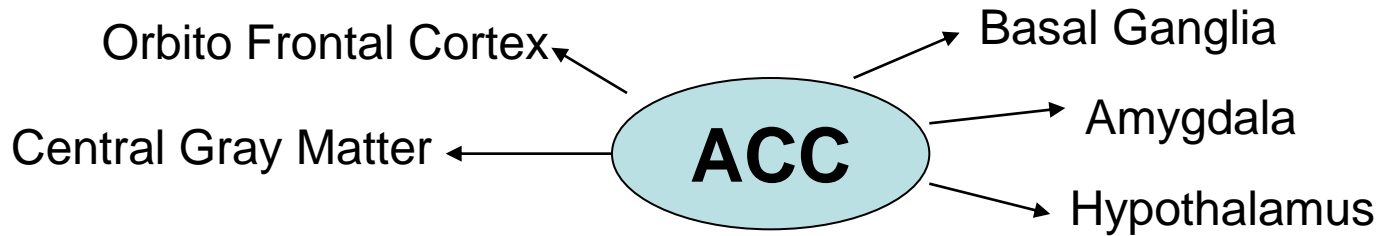


Emotion,  
Visc. Experience

# Neuronal Correlations of the Self-Other Dynamic

Kevin Ochsner C

## Anterior Cingulate Cortex



- Monitoring
- Evaluating Inner States
- Evaluating Performance
- Novelty
- Expectancy violations
- Conflict
- Autonomic n.s. + visceral response

# Neuronal Correlations of the Self-Other Dynamic

Hippocampus

Thalamus

Amygdala

N. Accumbens

Basal Ganglia

Hypothalamus

Central Gray Matter

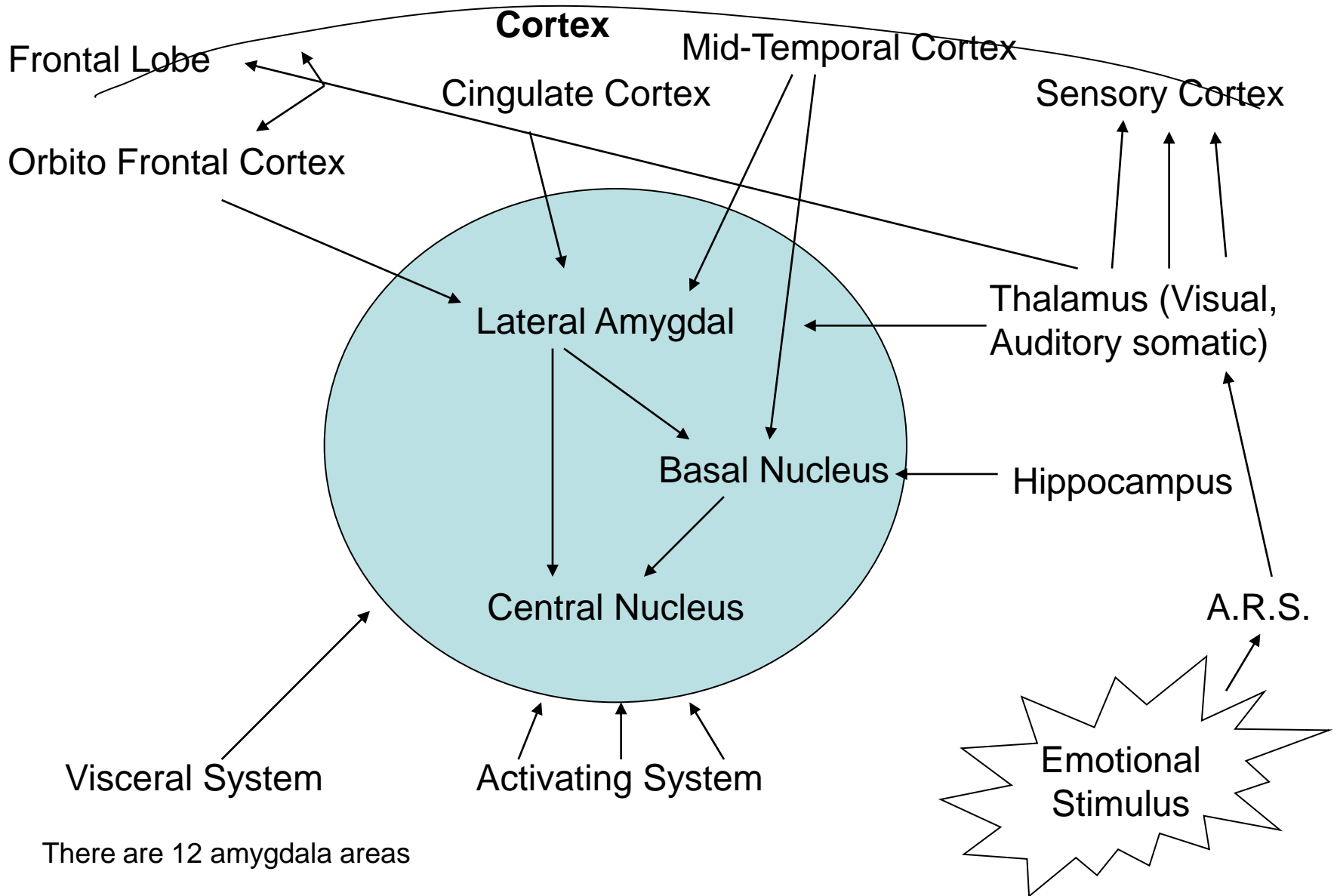
A.R.S. (Ascending Reticular System)

Basal Nuclei

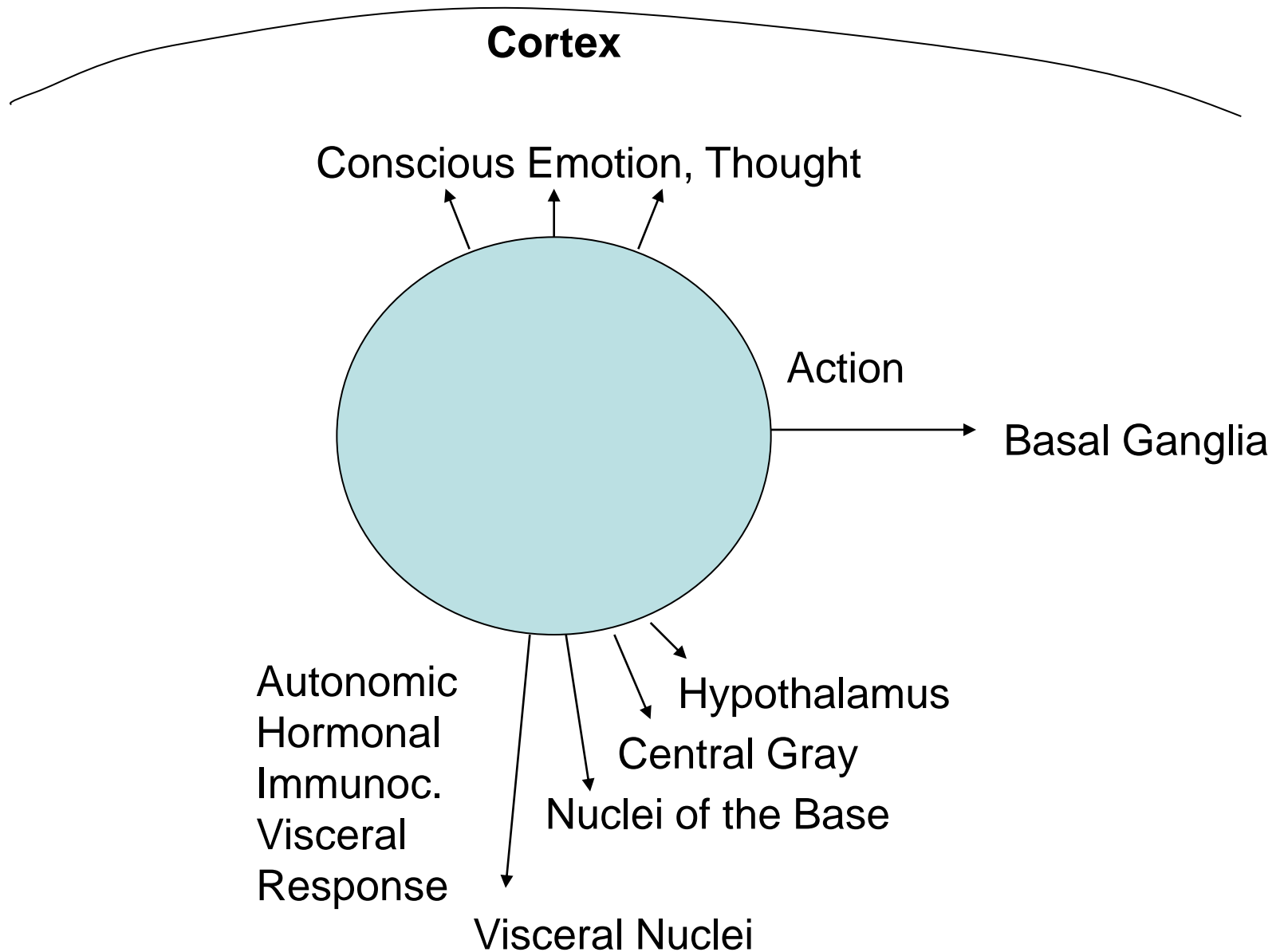
Vitality system

Visceral Nuclei

# Amygdala Inputs Le Doux



# Amygdala Outputs



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Available on website: [www.biosistemica.org](http://www.biosistemica.org)

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