

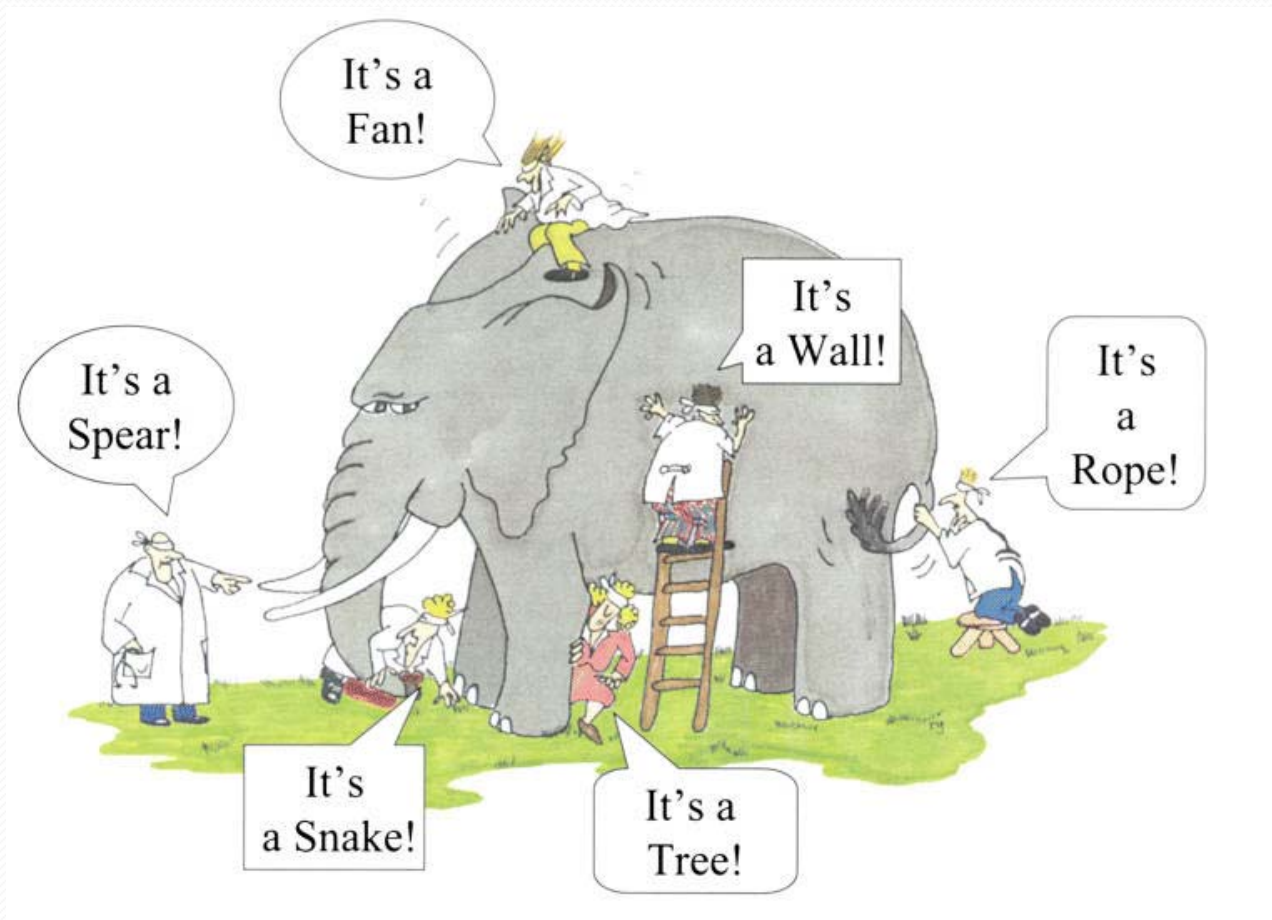
# Safely Through the Rapids:

## An Introduction to the Neurobiological Basis of the Human Emotional System

Nancy MacConnachie, Ph.D.

May 1<sup>st</sup>, 2018

## Introduction to the Affect System



# Silvan S. Tomkins, Ph.D.

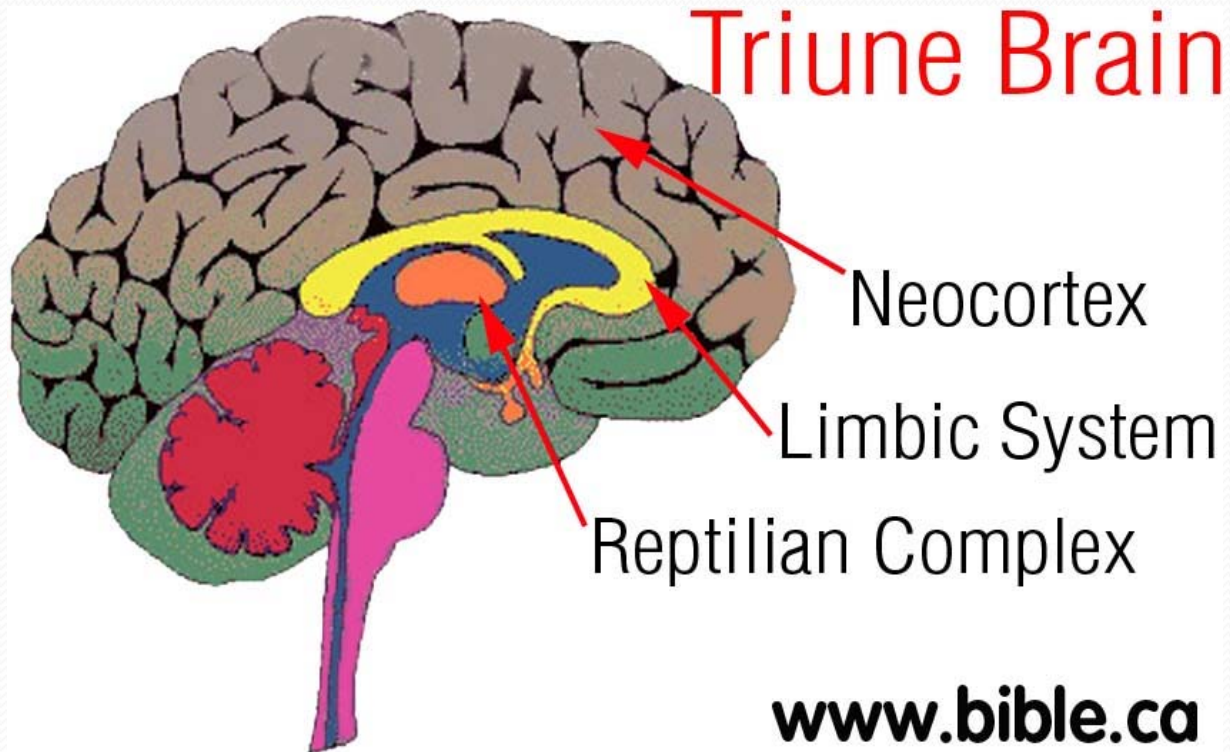




## Safely Through the Rapids

Out of all of the incoming data,  
the hardwiring of the Limbic System  
highlights which data to pay attention to  
based on the intensity of neural density  
triggered by the incoming stimuli

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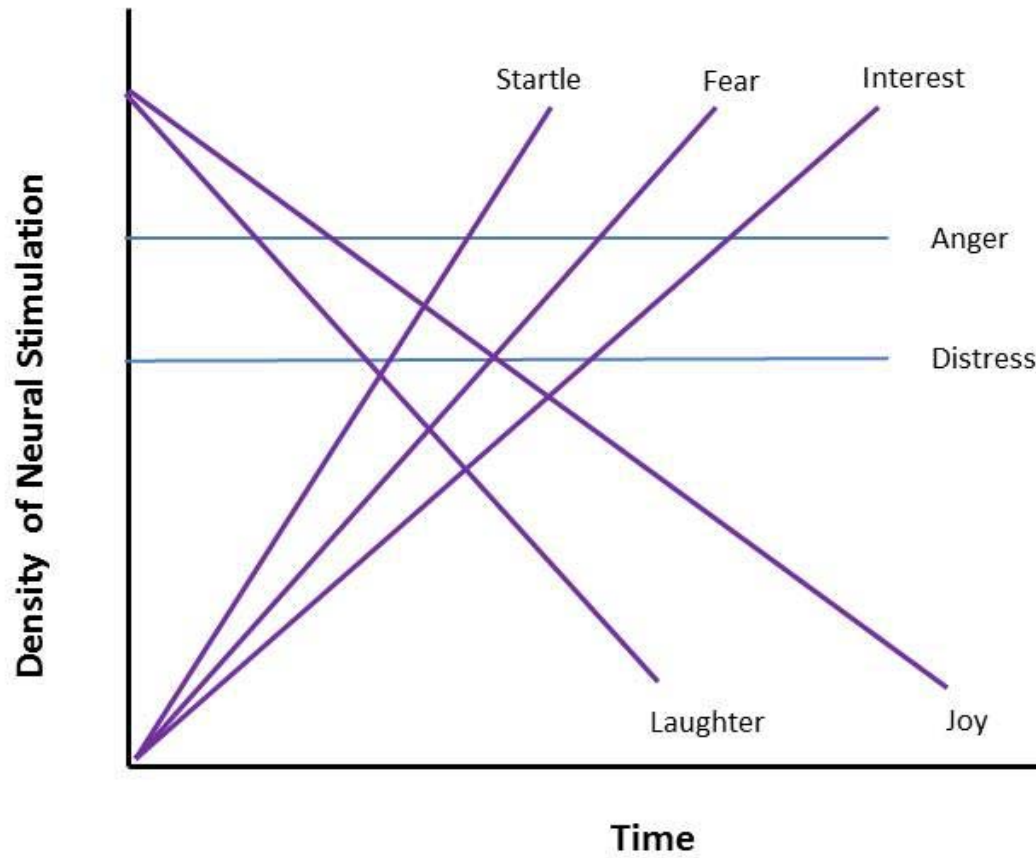


## Safely Through the Rapids



Neurons that fire together...  
wire together...

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### The Negativity Bias of the Affect System:

**Two Positive Affects: Interest-Excitement  
Enjoyment-Joy**

**One Neutral: Surprise-Startle**

**Six Negative Affects: Distress-Anguish  
Anger-Rage  
Fear-Terror  
Shame-Humiliation  
Dissmell  
Disgust**







## Introduction to the Affect System

### Mary Ainsworth, Ph.D. Attachment Theory

By the age of 12 months, Dr. Ainsworth determined that the baby had mapped the world around him/her in a manner which could be reliably and validly determined:

2/3 of 12 month old babies – mapped the world around them as Secure

1/3 of 12 month old babies – mapped the world as Insecure



## Introduction to the Affect System

### The Negativity Bias of the Brain

- Amygdala monitors the intensity of the incoming data
  - The negative Affects trigger the greatest rate and intensity of neural firing
- Hippocampus: Inhibits the amygdala  
Inhibits cortisol production
- Cortisol: Stimulates and sensitizes the amygdala  
Inhibits and can shrink the hippocampus
- Adrenalin: Is an antagonist to the hippocampus cells



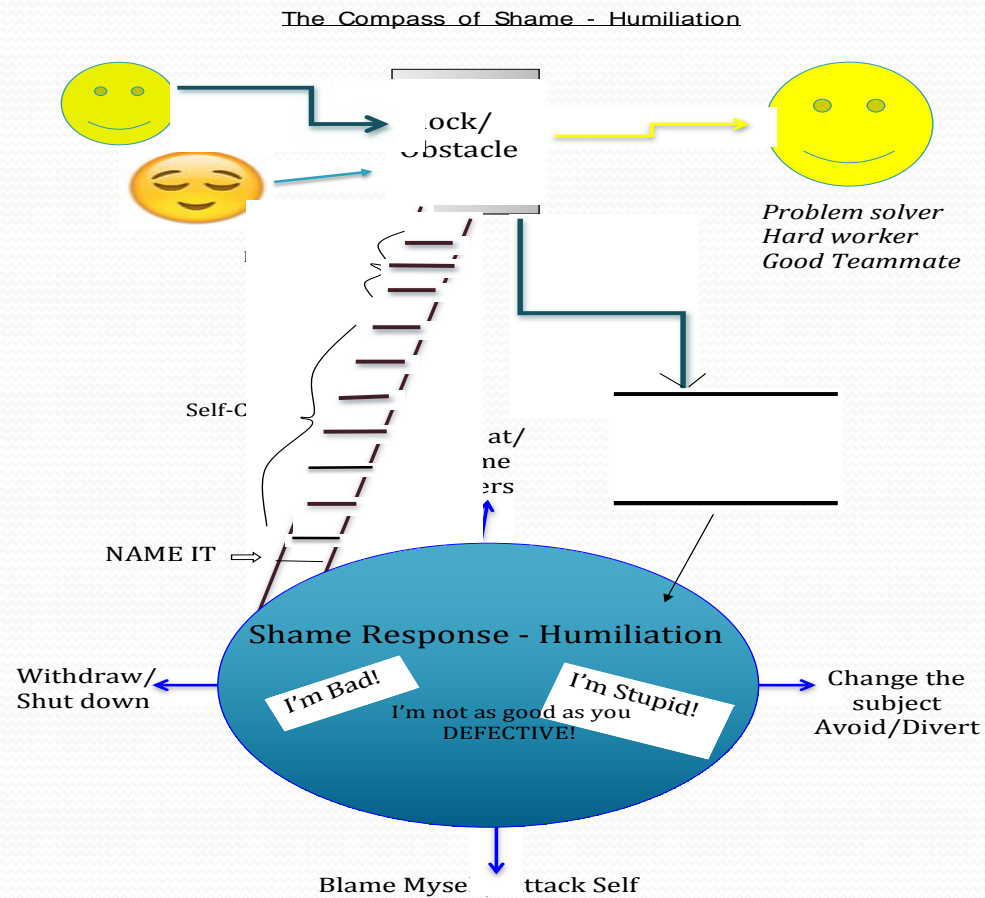
## Introduction to the Affect System

Therefore, chronic negative experiences:

- Sensitize the amygdala “alarm bell”
- Weaken the hippocampus, which reduces memory capabilities and the inhibition of amygdala and cortisol production
- Creating vicious cycles in the nervous system, mind, and behavior

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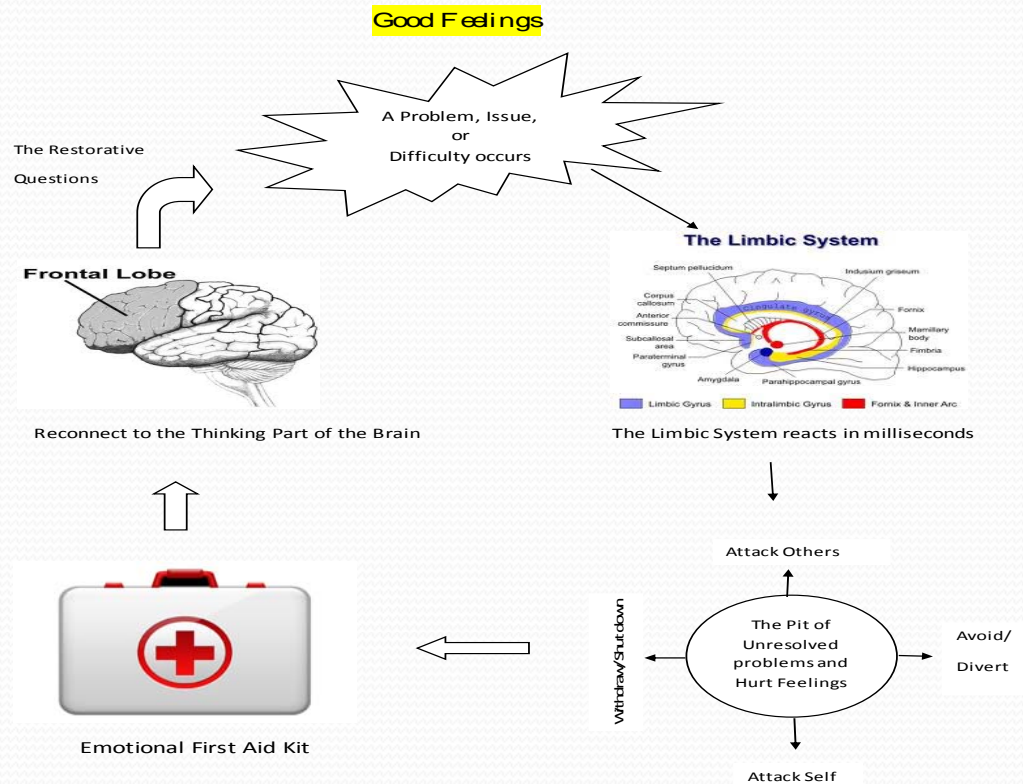
## The Shame Pit



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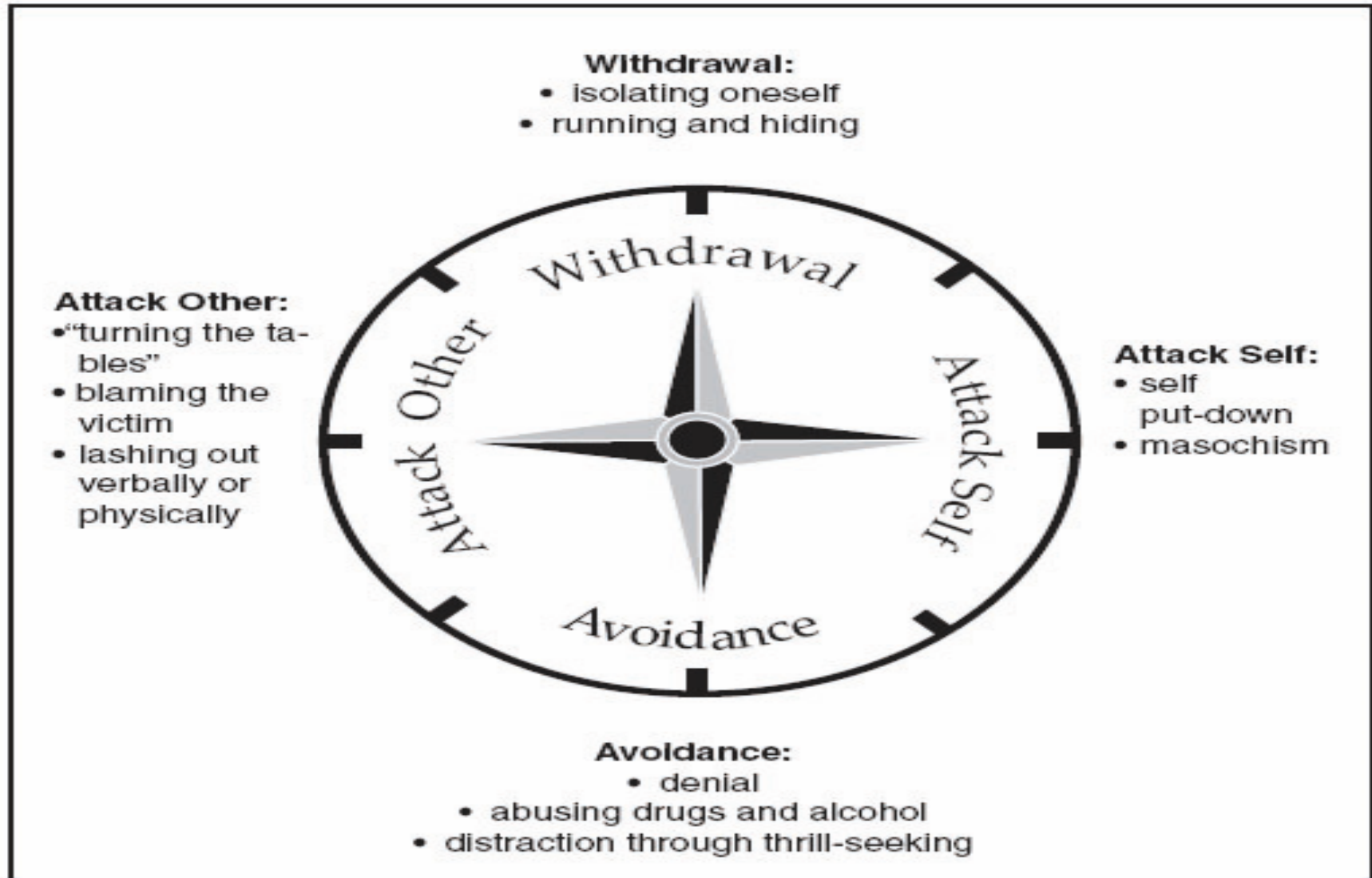
## The Emotional Cycle

The Emotion Cycle



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How Discovery School of Virginia

uses this information

re: the Neurobiology of the Human Emotional  
System