

# Anxiety, Negative Affect and Avoidance Motivation

A single trait - multitude of theories

# What is anxiety?

- Normal trait with variation in the experience of the unpleasant emotional state associated with subjective feelings of tension, apprehension, and worry as well as activation or arousal of the autonomic nervous system
- Traditional assumption in personality is that the psychiatric “disorder” is merely the end point of a normal trait.
- By studying the trait, we learn about the disorder, and by studying the disorder, we learn about the trait.

# Anxiety Symptoms

1. Excessive physiologic arousal
  1. muscle tension
  2. Irritability
  3. Fatigue
  4. Restlessness
  5. insomnia
2. Distorted cognitive processes
  1. poor concentration
  2. unrealistic assessment of problems
  3. worries
3. Poor coping strategies
  1. avoidance○procrastination
  2. poor problem-solving skills

Source: <http://www.sh.lsuhsu.edu/fammed/OutpatientManual/Anxiety.htm> taken from

# Anxiety as “disorder”

- Classification of anxiety disorders
  - Generalized Anxiety Disorder
  - Panic Disorder
  - Social Phobia
  - Separation Anxiety
  - Post Traumatic Stress

# Generalized Anxiety Disorder

- A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).
- B. The person finds it difficult to control the worry.
- C. The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms present for more days than not for the past 6 months). **Note:** Only one item is required in children.
  - 1. restlessness or feeling keyed up or on edge
  - 2. being easily fatigued
  - 3. difficulty concentrating or mind going blank
  - 4. Irritability
  - 5. muscle tension
  - 6. sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)

# GAD: continued (from DSM)

- D. The focus of the anxiety and worry is not confined to features of an Axis I disorder, e.g., the anxiety is not about having a Panic Attack (as in Panic Disorder), being embarrassed in public (as in Social Phobia), being contaminated (as in Obsessive-Compulsive Disorder), being away from home or close relatives (as in Separation Anxiety Disorder), gaining weight (as in Anorexia Nervosa), having multiple physical complaints (as in Somatization Disorder), or having a serious illness (as in Hypochondriasis), and the anxiety and worry do not occur exclusively during Posttraumatic Stress Disorder
- E. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism) and does not occur exclusively during a Mood Disorder, a Psychotic Disorder, or a Pervasive Developmental Disorder.

# Social anxiety

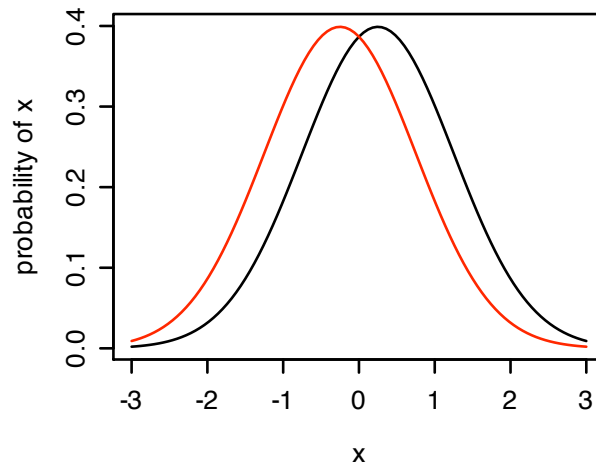
- A. A persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be embarrassing and humiliating.
- B. Exposure to the feared situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally pre-disposed Panic Attack.
- C. The person recognizes that this fear is unreasonable or excessive.
- D. The feared situations are avoided or else are endured with intense anxiety and distress.
- E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.
- F. In individuals under age 18 years, the duration is at least 6 months.
- G. The fear or avoidance is not due to direct physiological effects of a substance (e.g., drugs, medications) or a general medical condition not better accounted for by another mental disorder...

# Anxiety as a dimension of personality

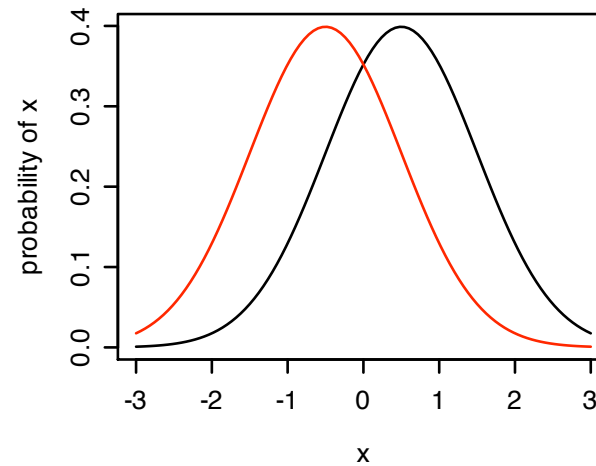
- Anxiety, Negative Affectivity, Neuroticism and (lack of) Emotional Stability are all closely related trait terms that show normal variation in the population.
- Extreme scores on these dimensions are associated with the diagnosis of a disorder.
- Possible to understand the extremes by studying normal variation.
- However, small differences in means can lead to large differences at tails of the distribution.

# Odds of outcome as f(mean difference, extremity)

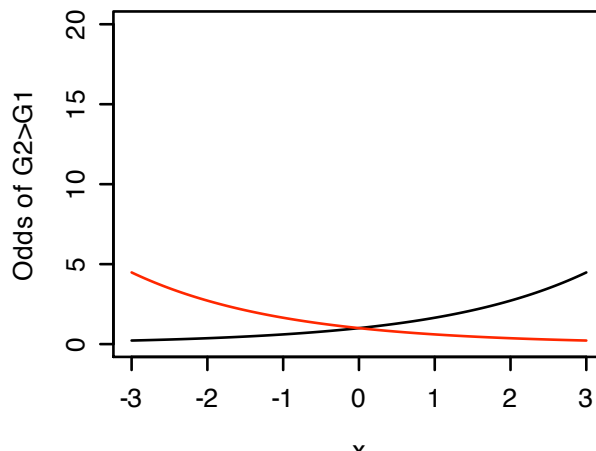
Normal density for two groups



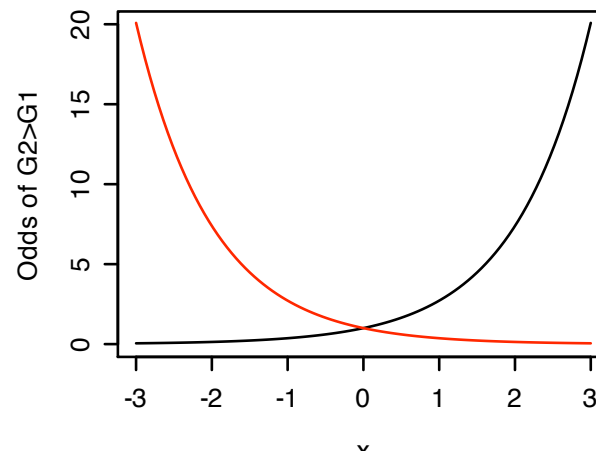
Normal density for two groups



Odds ratio of G1 vs G2

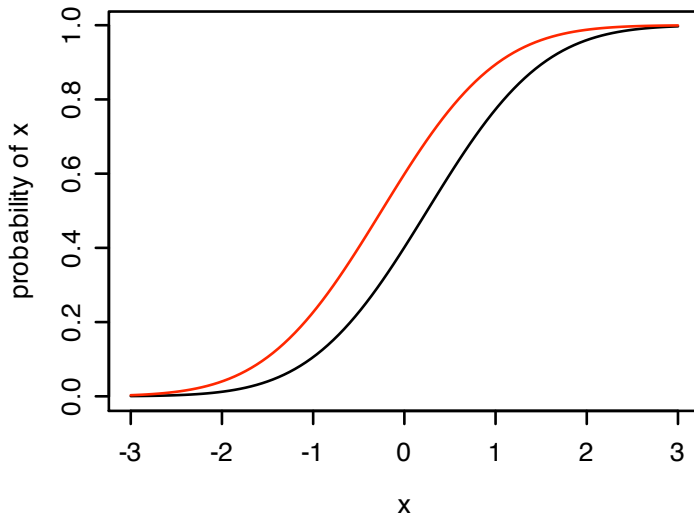


Odds ratio of G1 vs G2

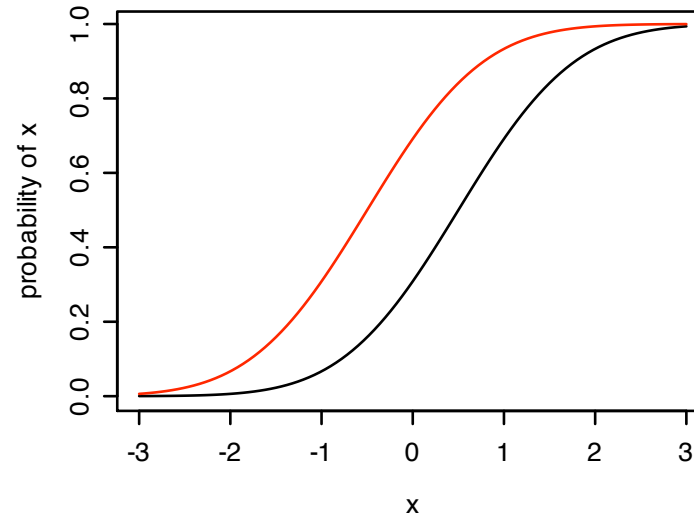


# The effect of group differences on likelihood of extreme scores

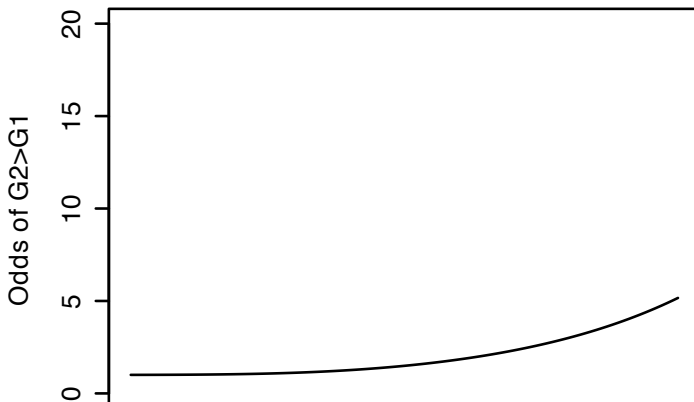
Cumulative normal density for two groups



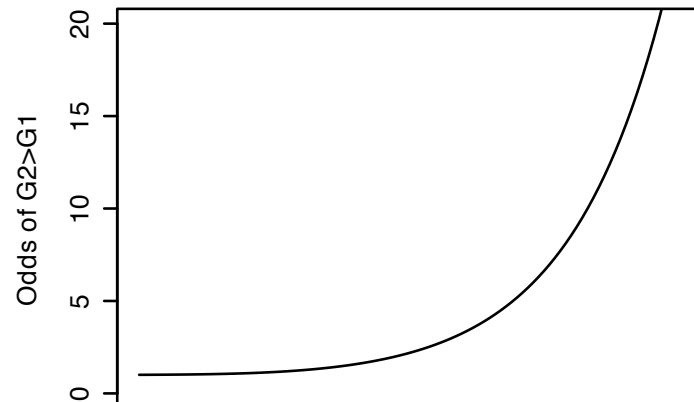
Cumulative normal density for two groups



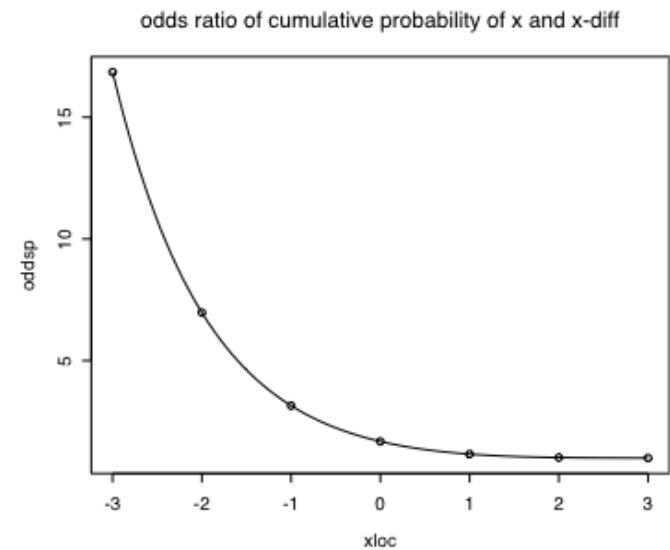
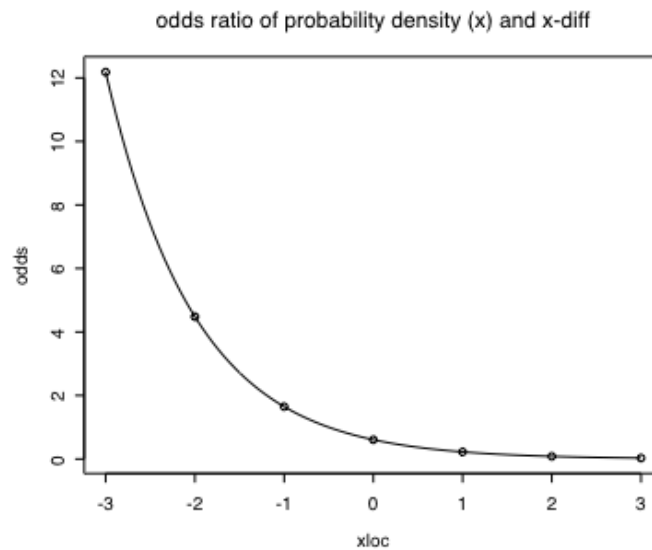
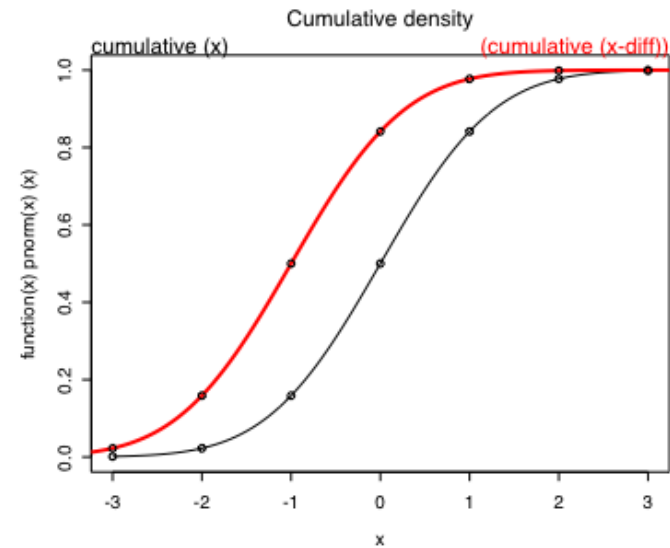
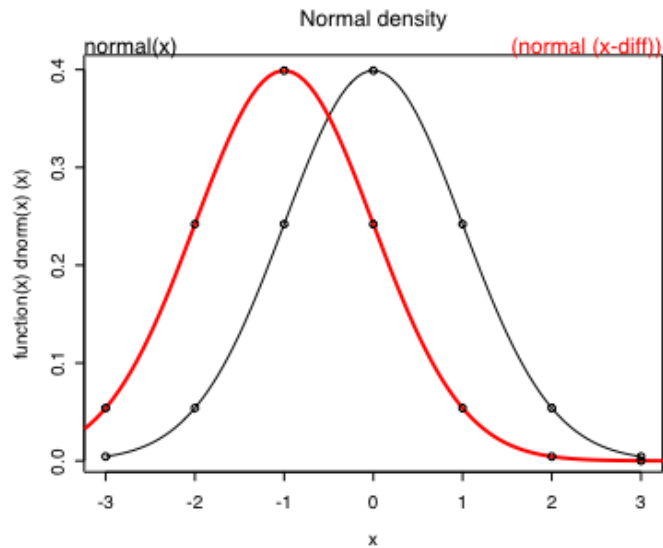
Odds ratio that person in Group exceeds x



Odds ratio that person in Group exceeds x



# Shifts of 1.0 standard deviation and resulting changes in odds



# Typical Measures

- Manifest Anxiety scale (Janet Taylor Spence)
  - Worry/Oversensitivity
  - Social Concerns/Stress
  - Physiological Anxiety
  - Fear of Aging (for elderly)
  - Test Anxiety (for students)
- State-Trait scales (Spielberger)
- Situational Anxiety Scales

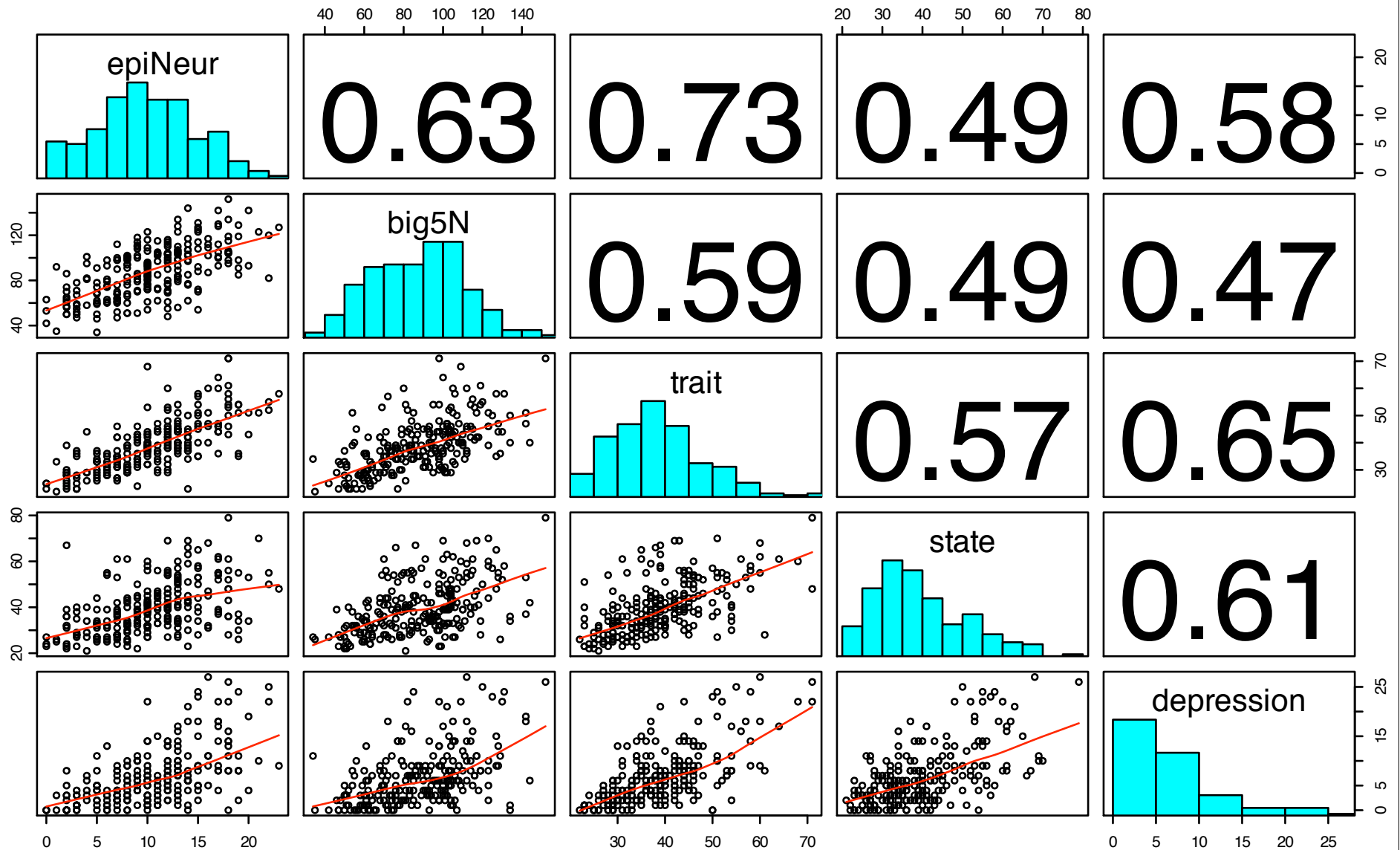
# State Trait Anxiety Measures

- Current (State) or Typical (Trait) feelings of
  - Nervous and restless
  - Failure
  - Inadequate
  - Disturbing thoughts
  - Pleasant (reversed)
  - Satisfied with self (reversed)
  - Rested (reversed)
  - Happy (reversed)

# Anxiety Trait vs. Anxiety State

- Ray Cattell & Charles Spielberger
  - Anxiety trait as a susceptibility to the state
  - But not necessarily frequency of state
    - (anxiety trait can lead to avoidance of situations that lead to the state)
- Components of State anxiety (Morris and Liebert)
  - Autonomic arousal/somatic tension
  - Worry and attentional deficits

# Anxiety, Neuroticism and Depression



data from various PMC studies, N=231

# Multiple theories of anxiety effects on performance

- Hull-Spence Drive Theory (and task difficulty)
- Anxiety and the inverted U
- Anxiety as an inappropriate response
- Anxiety and Negaction - Dynamics of Action
- Anxiety as cognitive load
- Anxiety and performance avoidance (Fear of Failure)

# Hull, Spence & Spence Drive Theory

Hull-Spence theory of learning and performance

(a) Reaction potential = Habit x (Drive + Incentive)

i)  $sE_r = sH_r (D + K)$

(b) Habit strength reflects previous experience

(c) Drive =  $\Sigma$  (non specific effects)

i) {hunger, thirst, sex}

ii) anxiety

# Drive Theory applied to anxiety

Anxiety and learning

eyeblink conditioning

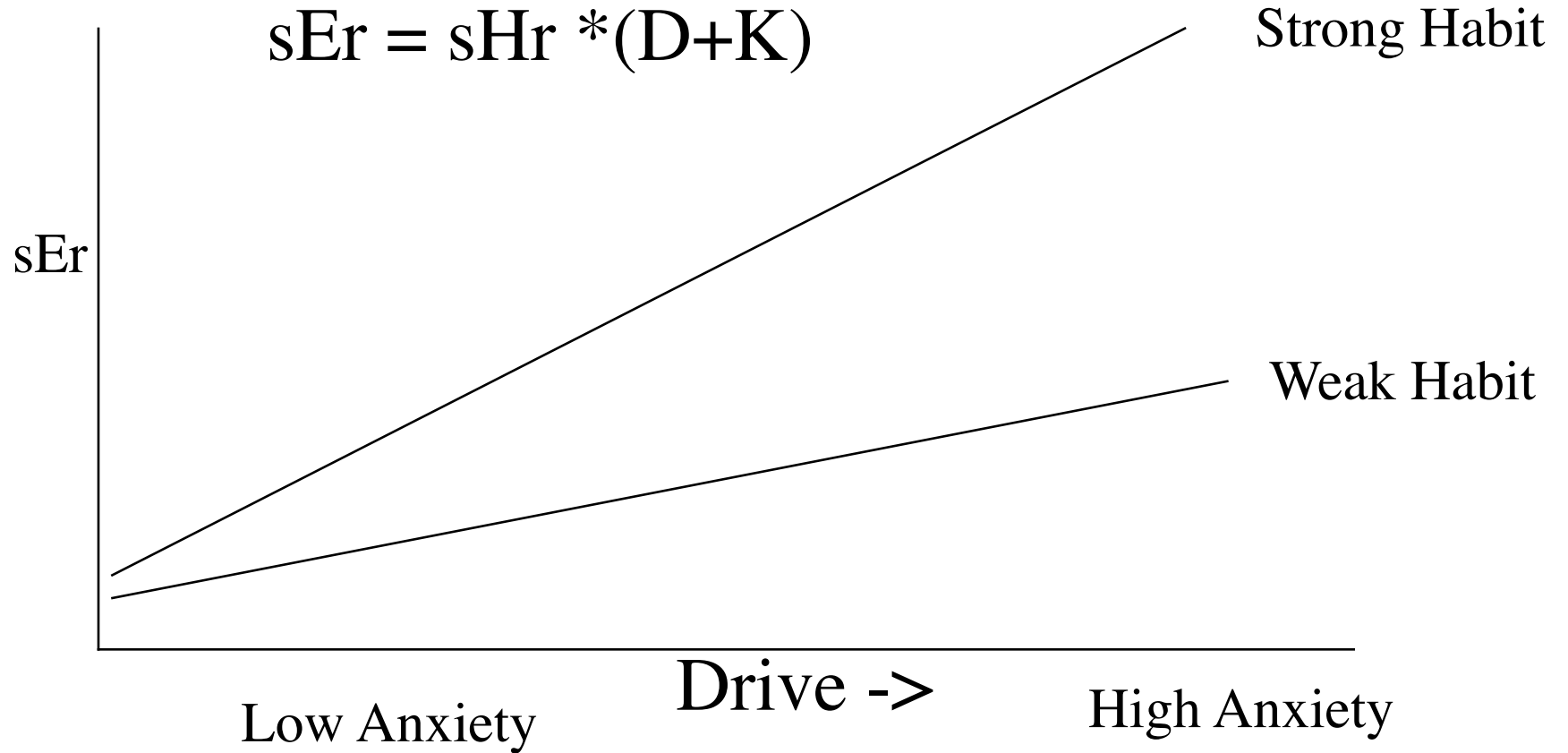
verbal learning of easy and hard lists

Spence, Farber and McFann (1956)

task difficulty interacts with lists

difficulty in verbal learning

# Drive Theory Predictions



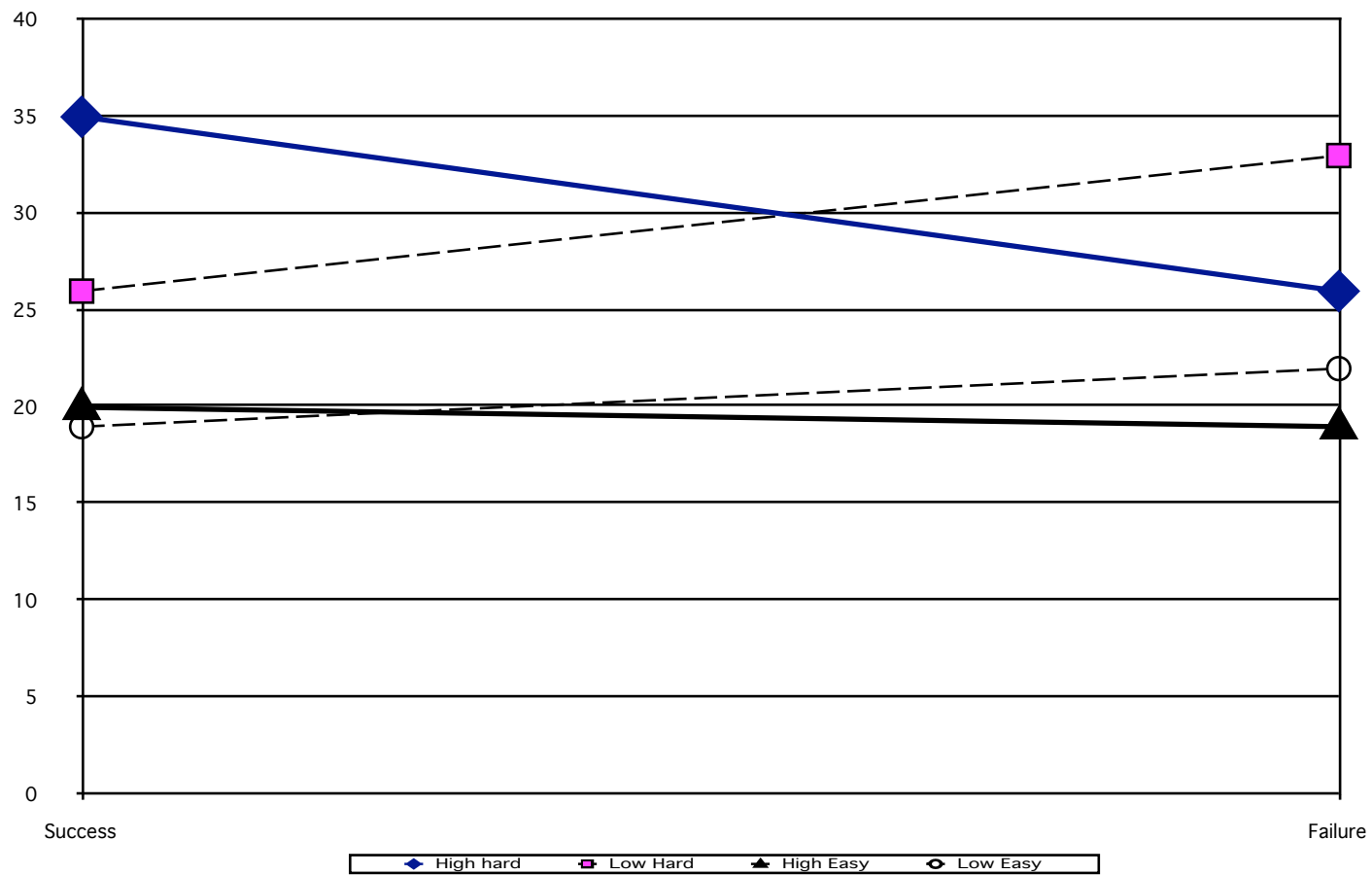
# Weiner and Schneider, 1971

- Task: Learn 13 CVC trigrams  
Easy List: high between item differentiation  
e.g. PAK, BIM, MOT  
Difficult list: low between item differentiation  
e.g. HOV, VOV, RIV, MIV  
Lists presented as serial anticipation (implicit feedback?)  
Subjects were high and low resultant Achievement  
Motivation (Nach - Naf)  
Feedback - list is (easy/hard) you are doing better/worse  
than others

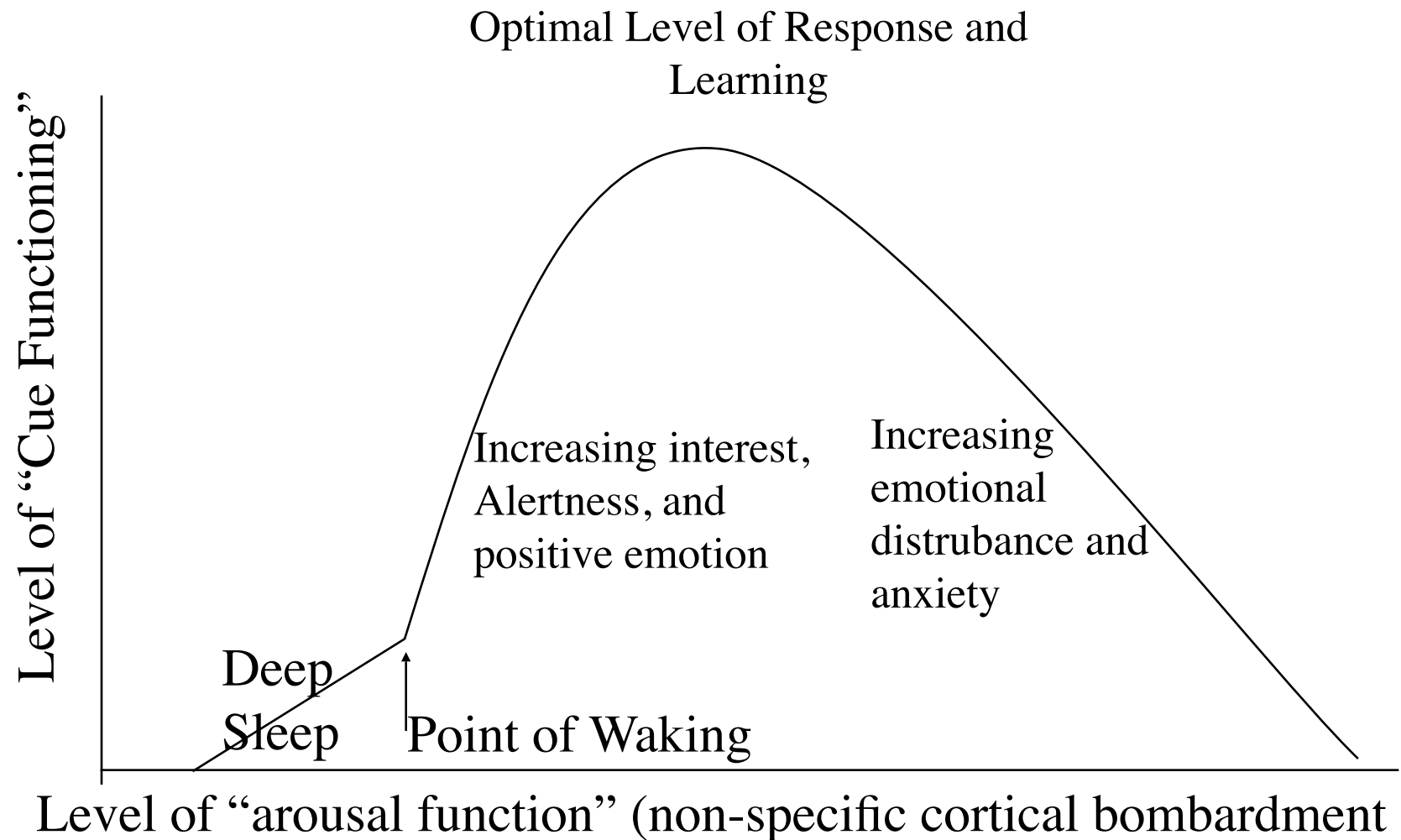
# Anxiety and Task Difficulty

- Many studies have replicated the original Spence, Farber and McFann study
- However, all of these have used a serial anticipation technique that confounds task difficulty with implicit feedback to the subject.
- Is it feedback or task difficulty that is most important?

# Weiner and Schneider, 1971

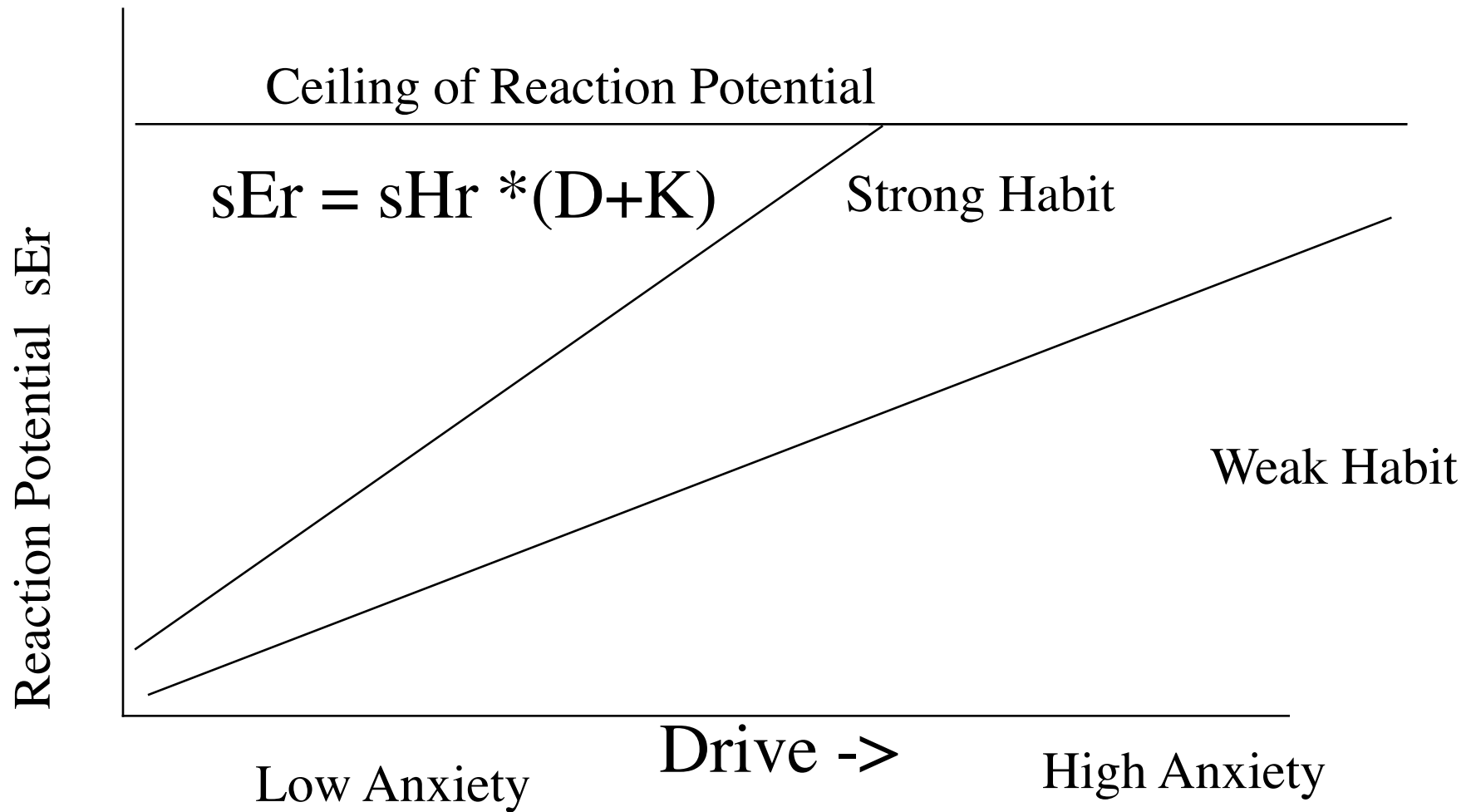


# Anxiety, Drive and the Inverted U (from Hebb, 1955)



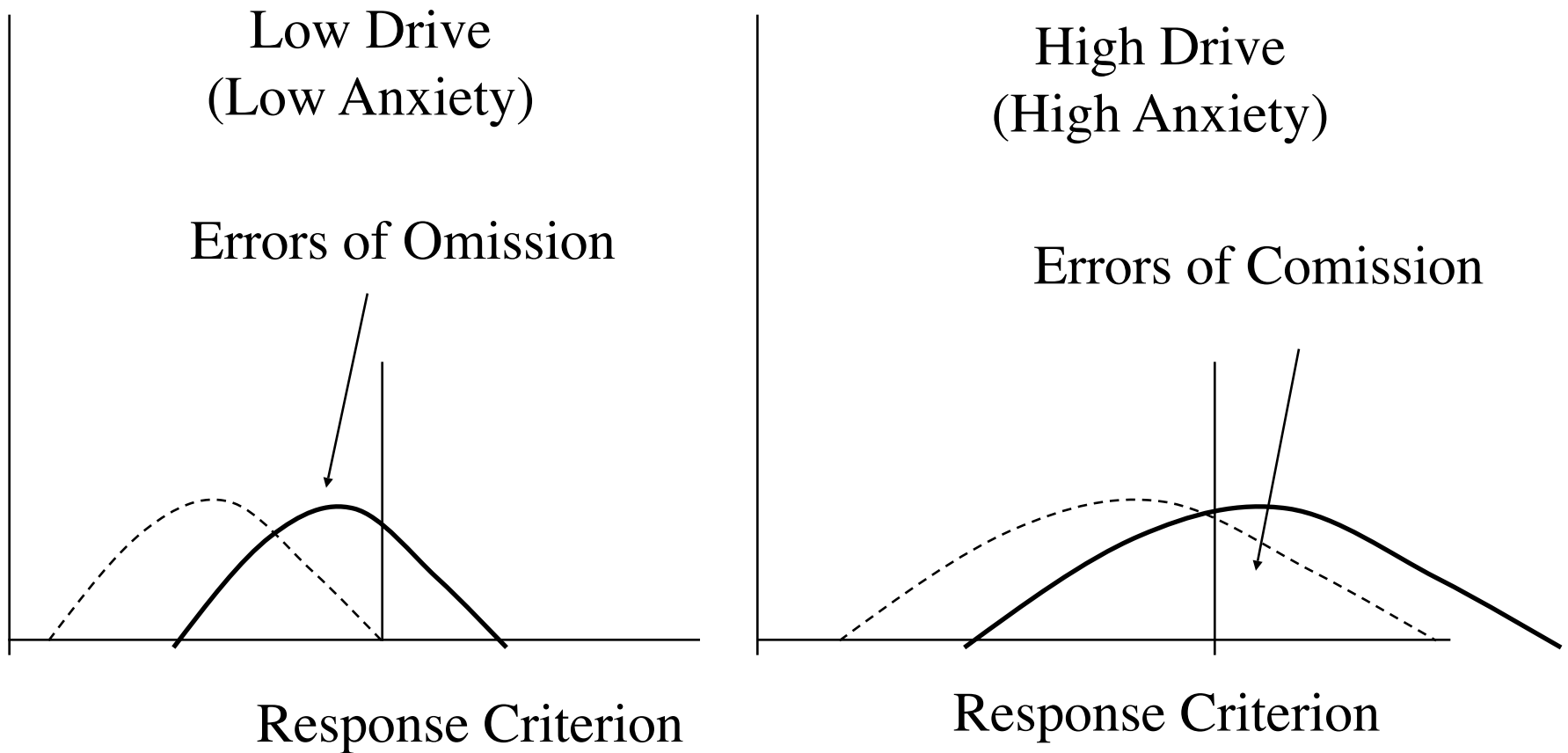
# Broen and Storms

## Drive Theory and Inverted U



# Broadbent: Drive and Error Types

## Drive spreads response strength and changes error type



# Anxiety as an inappropriate response

- Mandler-Sarason-Wine
- Sarason and Test Anxiety
  - Attention is diverted to off task thoughts
  - Should be able to redirect attention
- Jeri Wine: Anxiety and attentional deficits
  - A simple model that has much support

# Anxiety and Working Memory

- M.W. Eysenck et al.
  - Anxiety leads to a working memory deficit
  - Fewer resources to bring to task
  - Implies interaction of memory load with anxiety
  - But memory load is frequently confounded with task difficulty and implicit feedback (see Weiner and Schneider)

# Anxiety and attentional bias

- The Stroop Task
  - Speeded naming of colors when conflicting with color names
- The Emotional “Stroop” Task
  - Anxiety impedes speed of color naming of threat words

# A Stroop Task

Name the color of the slide as  
quickly as possible  
Ignore the word name

# The Emotional “Stroop”

- Anxiety related to impairment to color naming in the face of emotional cues
- But is the effect due to a general inhibitory effect of negative emotion on performance
- Decay of effect over time varies as function of anxiety (Gilboa and Revelle)

# Attention allocation: The dot probe task

- Respond with right finger if dot is above the fixation point, with left finger if dot is below the fixation point:

•

+

+

•

# Anxiety and memory biases

- Selective interpretation of homophones
  - (Butler and Mathews)
  - Pain/pane
  - Groan/Grown
  - Die/Dye
- Selective interpretation of sentences
  - Consider the following sentence, does the next sentence follow from it?

# Ambiguous sentences

- The doctor opened the chest  
And discovered the treasure  
And removed the heart

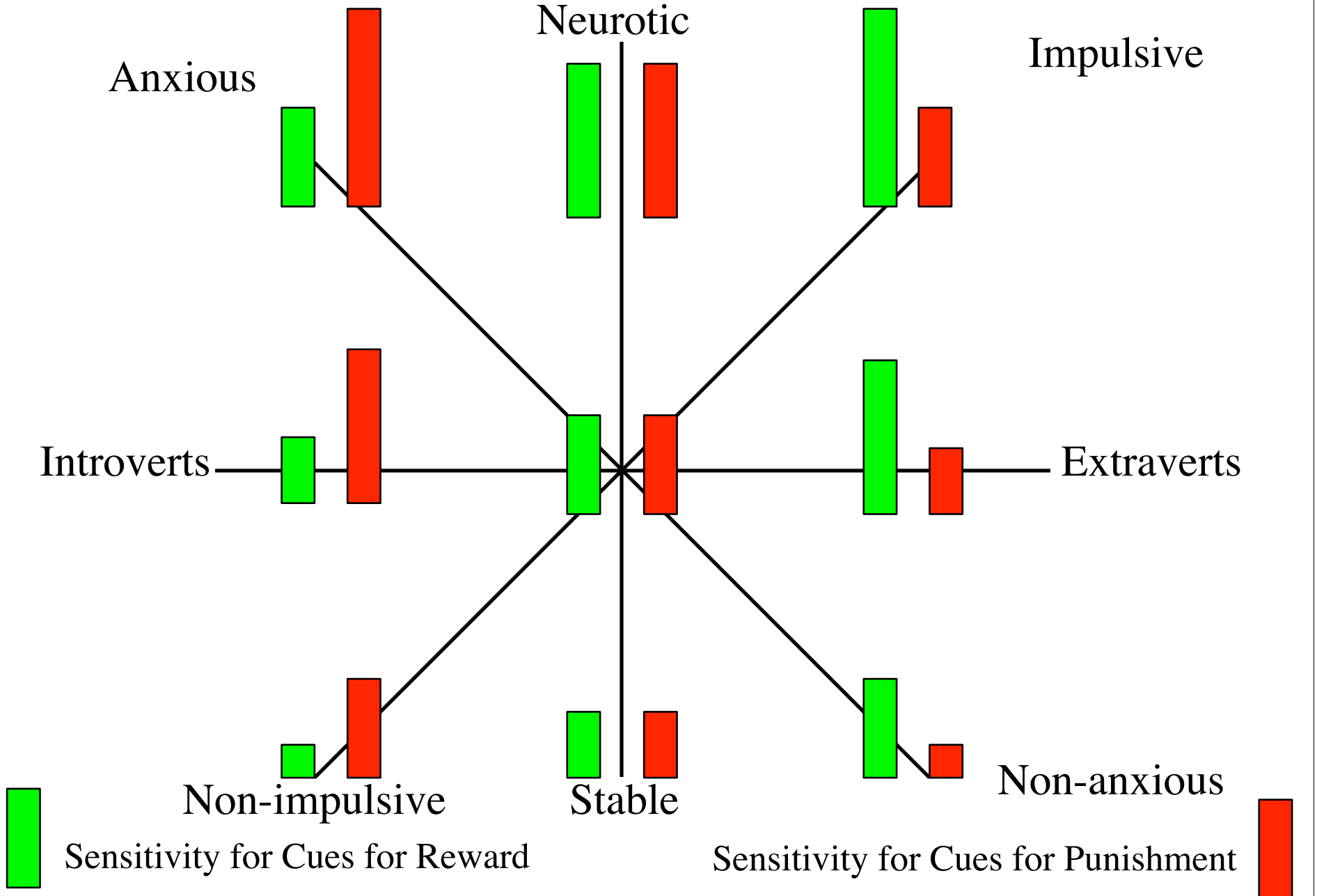
# State Trait Distinction revisited

- Are traits predispositions to states
  - Sensitivity to cues
  - Frequency of achieving state
- Are traits predictors or scars?
  - Currently depressed, never depressed, formerly depressed

# Gray: The BIS/BAS/FFS model

- Anxiety and the Behavioral Inhibition System
- Impulsivity and the Behavioral Activation System
- Aggression and the Fight/Flight System
- Is this a sensitivity to cues for punishment and rewards or a sensitivity to the actual strength of the rewards and punishments?

# Gray's hypothesis



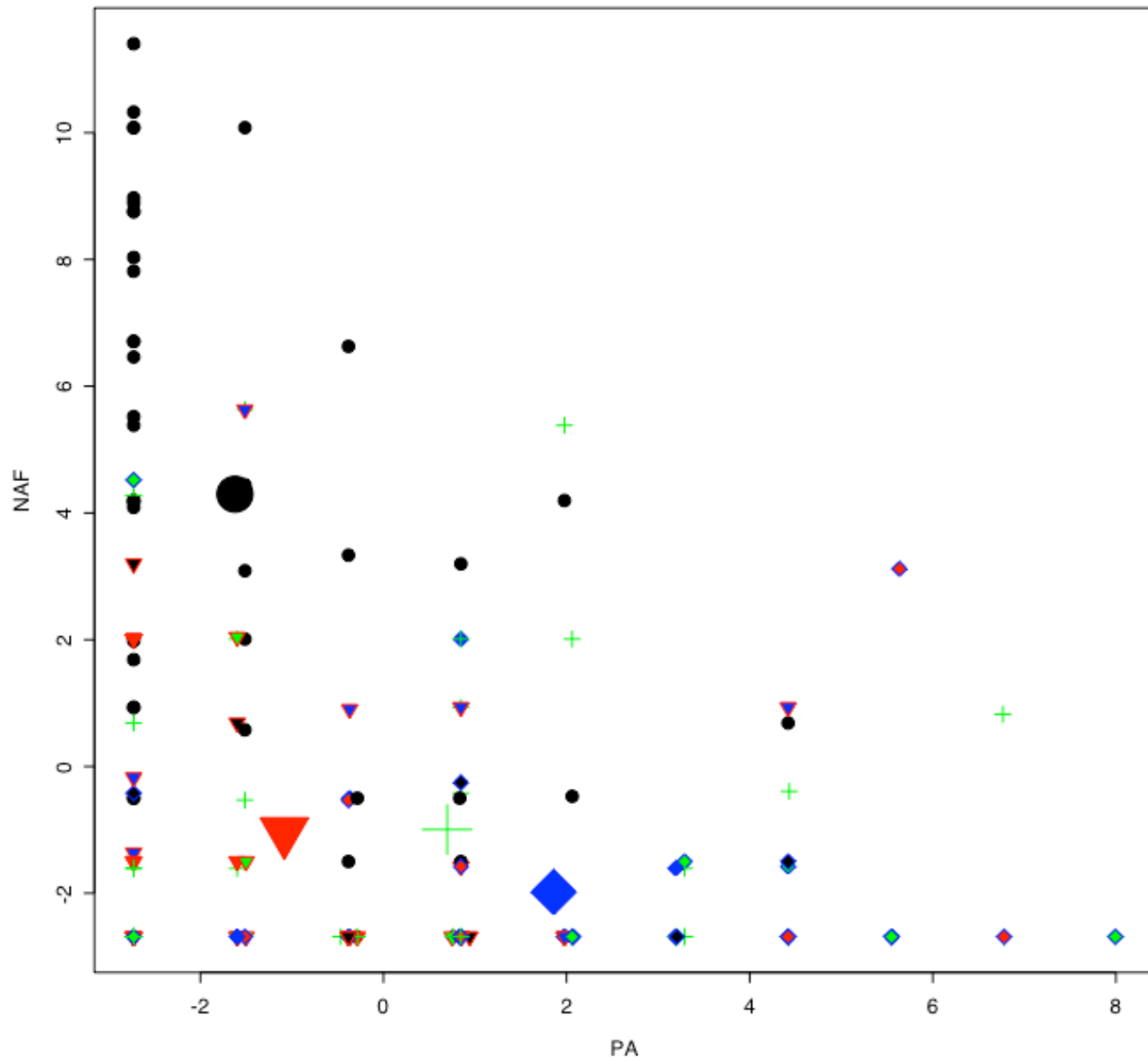
# Watson & Clark: Anxiety, Depression and Affect

- Two dimensions of affect reactions
  - Positive Affect (happy, pleased)
  - Negative Affect (sad, depressed)
- Anxiety as high NA + high tension
- Depression as high NA and low PA

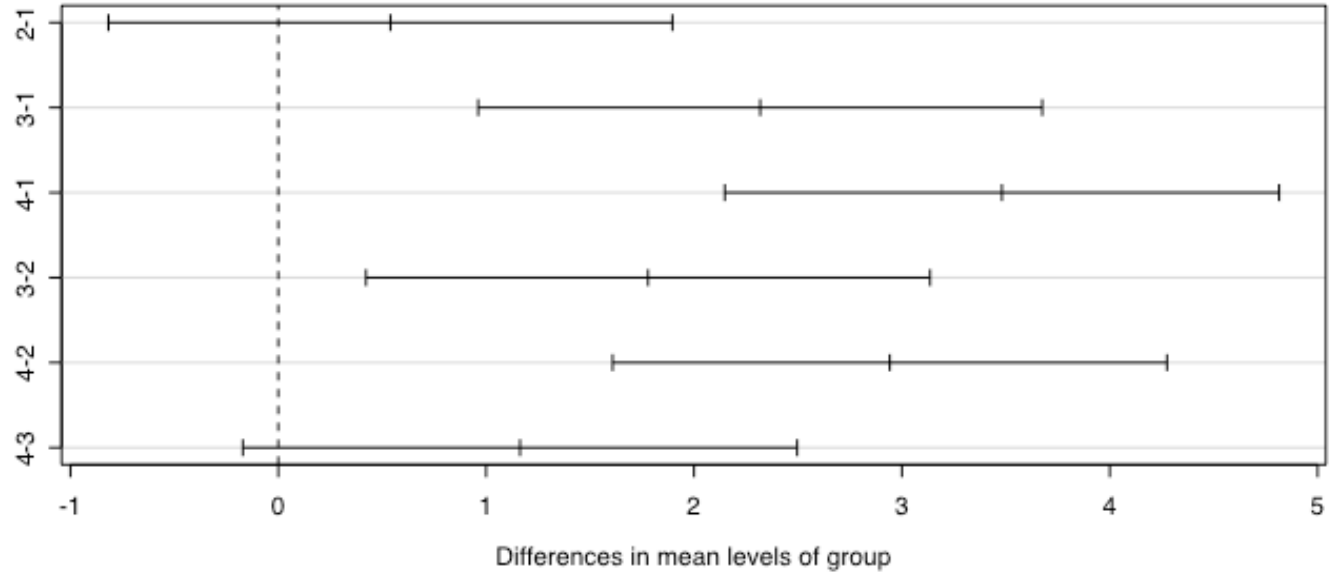
# Manipulations of Depression & Anxiety

- Movie induction
  - Concentration camp
  - Halloween
  - Control (nature film)
  - Parenthood
- Exam Positive and Negative mood induction

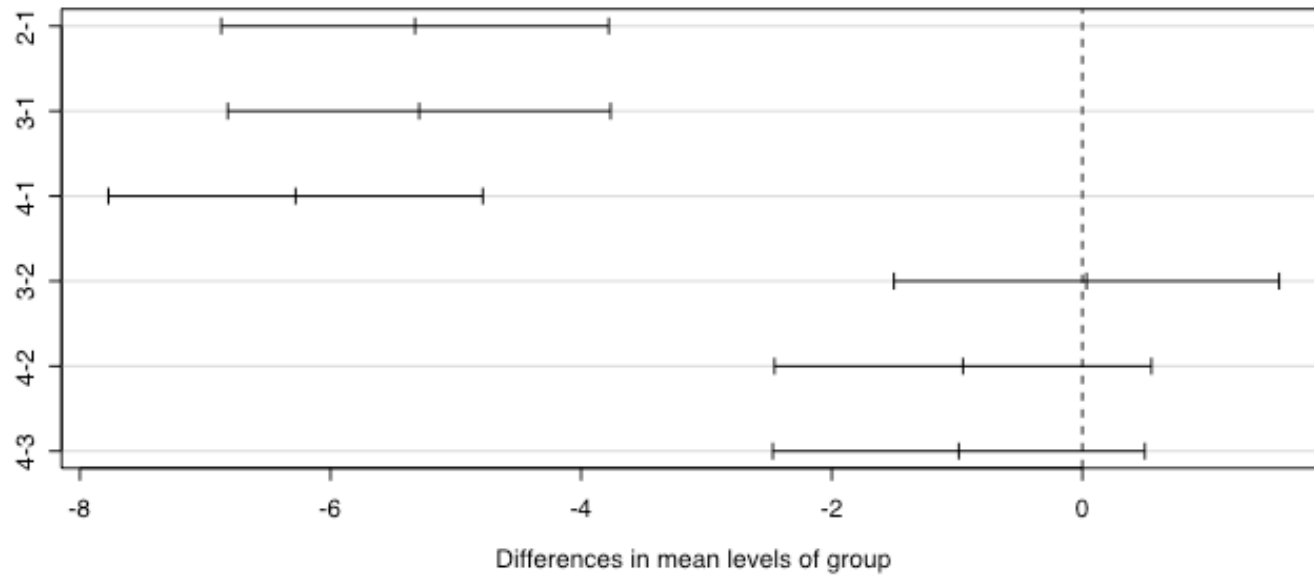
Postive vs. Negative Affect by Film condition



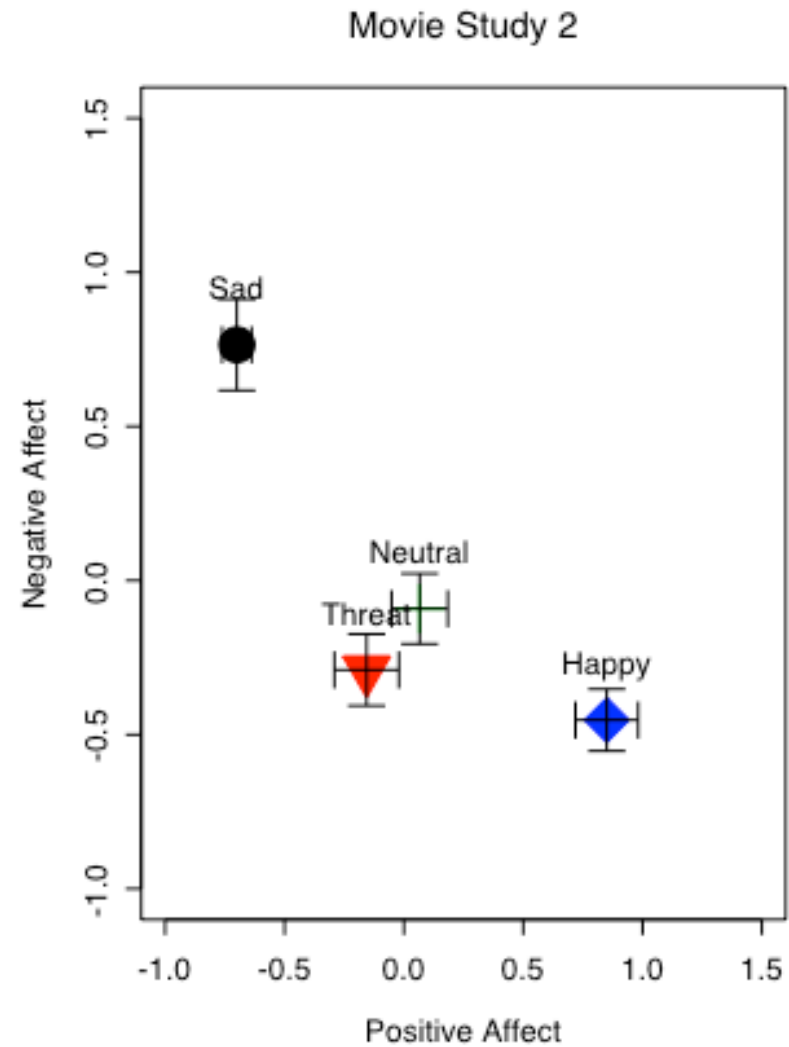
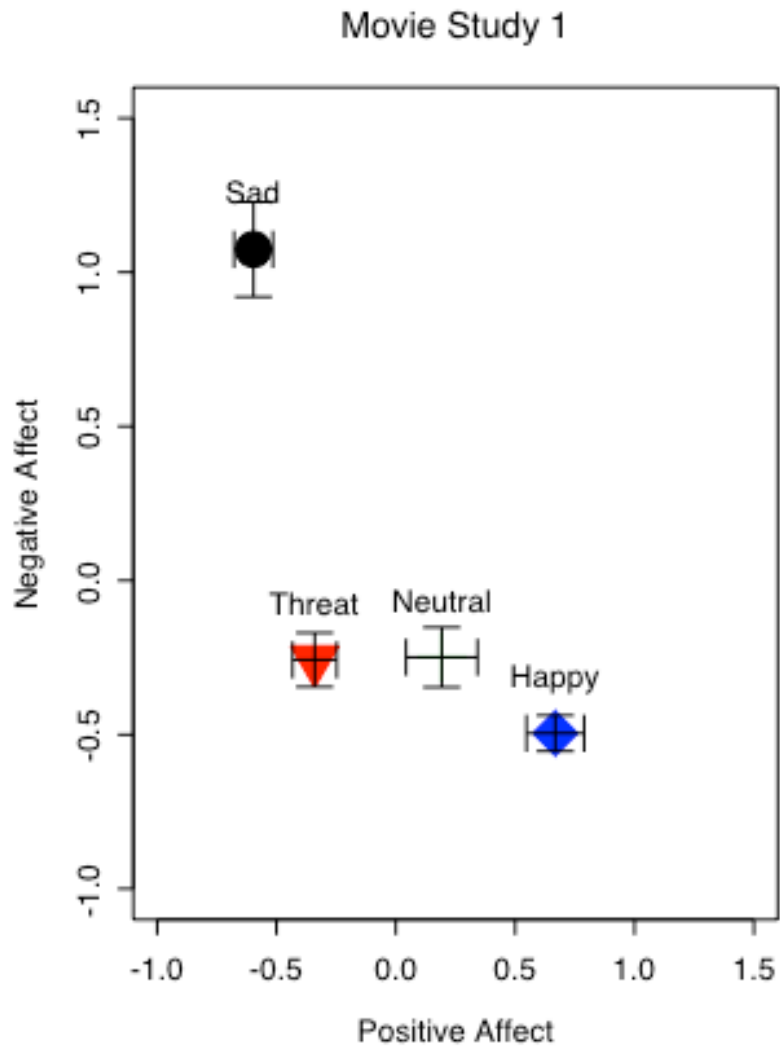
95% family-wise confidence level



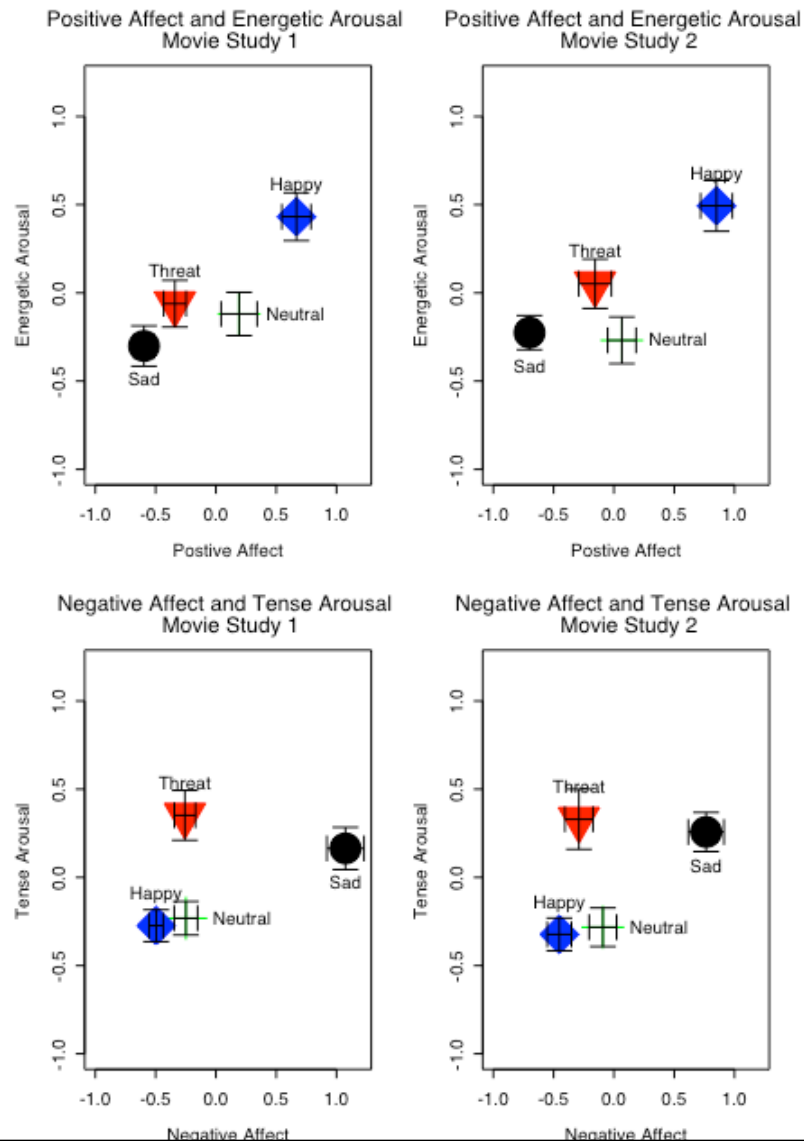
95% family-wise confidence level



# Effect of Movies on PA/NA



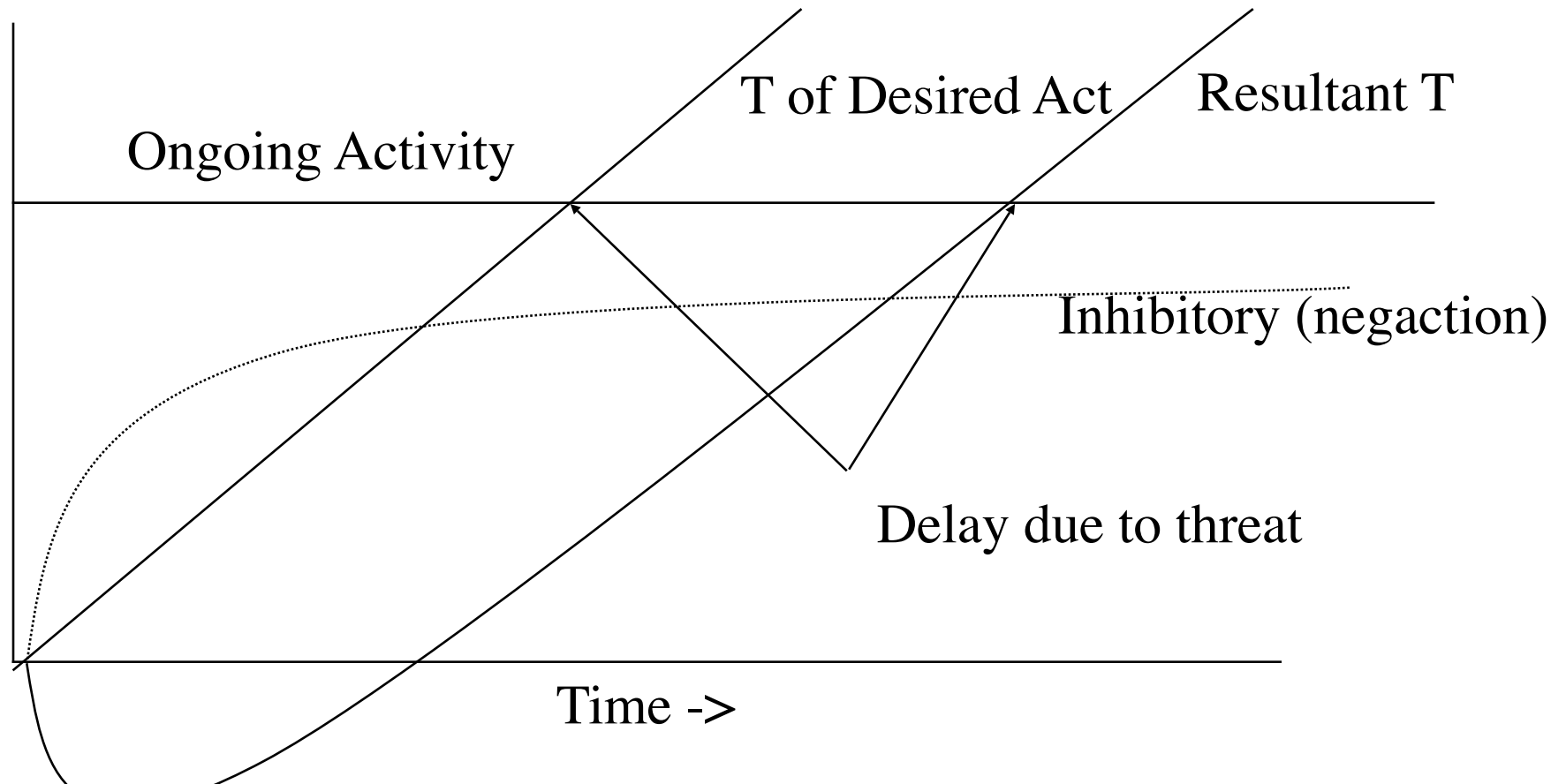
# Movies show differences between +/- affects and arousals



# Anxiety and performance

- Dynamics of Action predicts effects of anxiety reduce over time
- Anxiety -> Negaction -> behavioral suppression at first

# Dynamics of Action and delayed onset of threatened actions

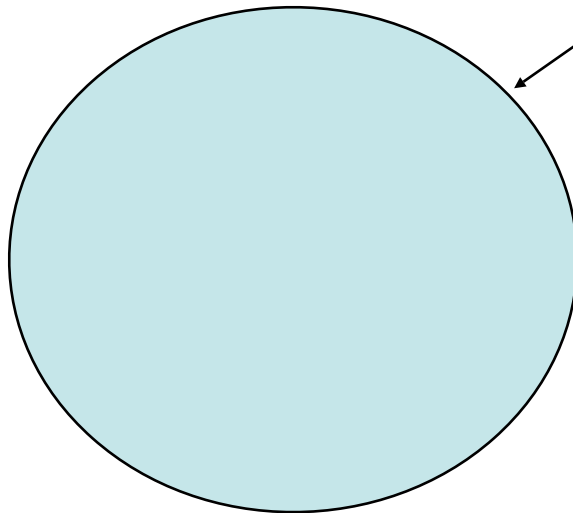


# Anxiety, Arousal and Breadth of Attention: the Easterbrook hypothesis

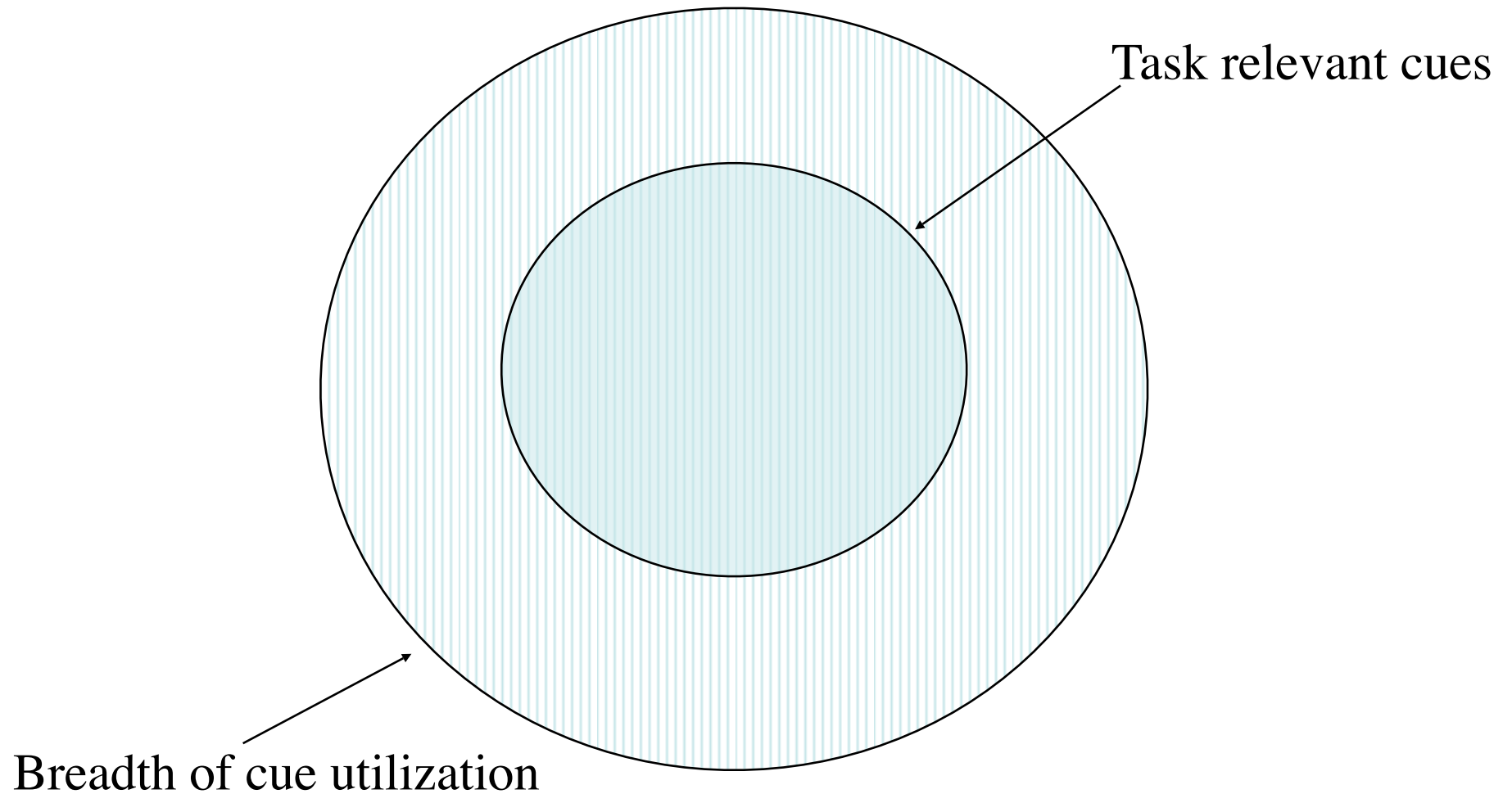
- Arousal/Anxiety thought to change the range of cue utilization
- Tasks differ in the breadth of cues required
- Arousal/anxiety narrows the focus of attention

# Tasks require certain number of cognitive/environmental cues

Task relevant cues

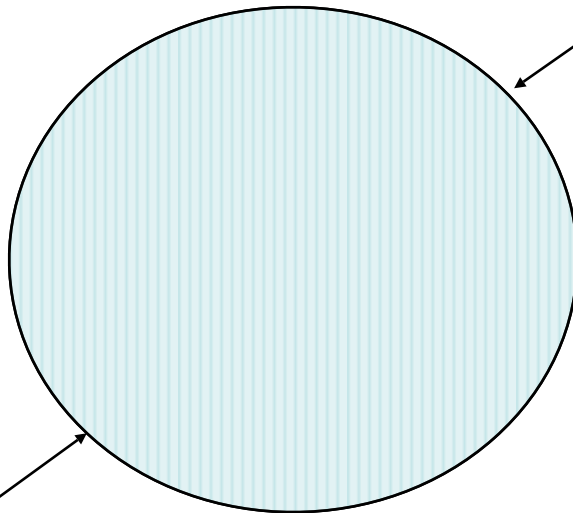


# Low arousal/anxiety large attentional breadth



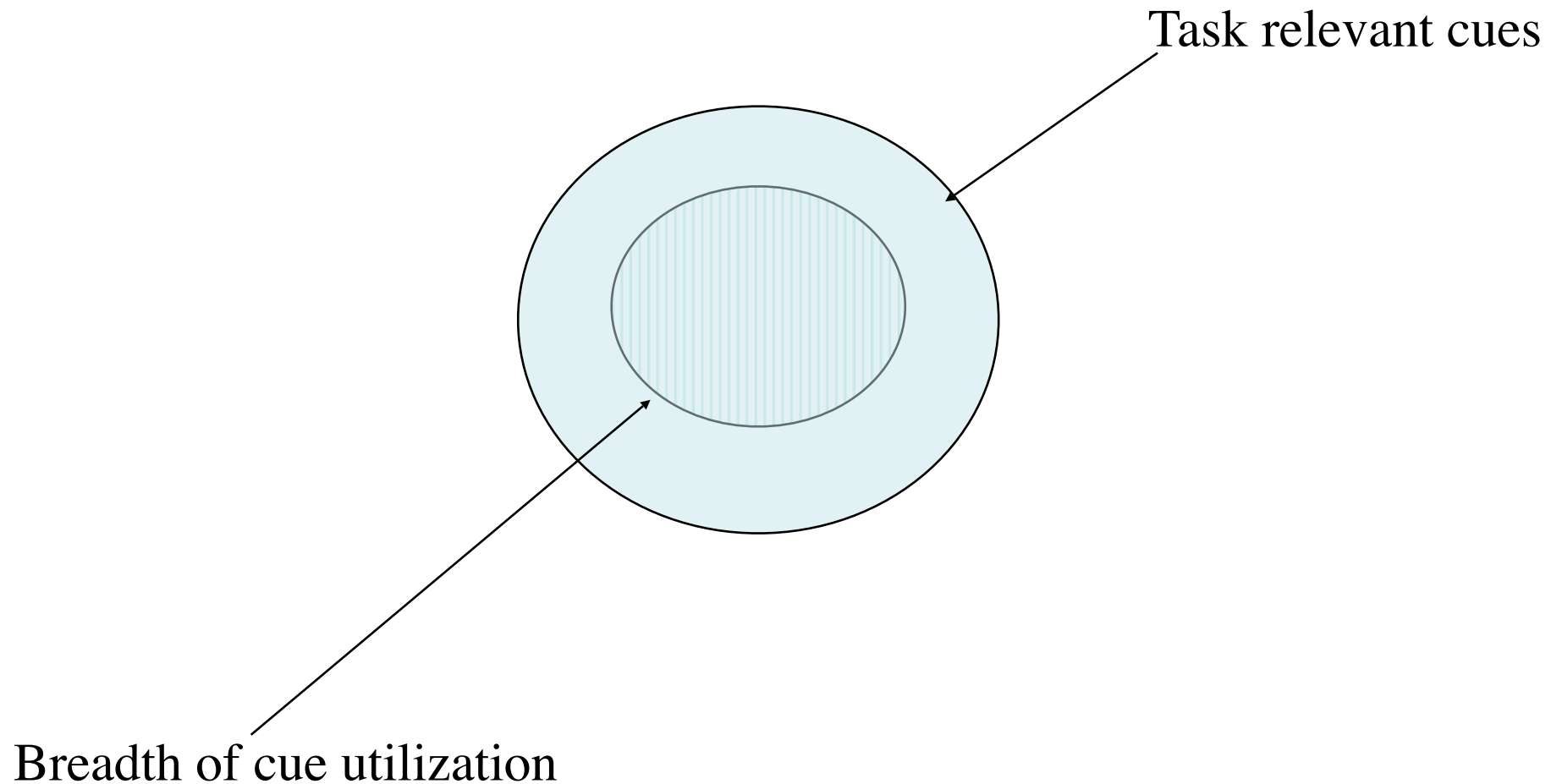
moderate arousal/anxiety  
moderate attentional breadth

Task relevant cues



Breadth of cue utilization

# High arousal/anxiety narrow attentional breadth



# Positive/Negative Affect and Cue utilization: forests vs. trees

- Gaspar and Clore (2002)  
affect and broad vs. narrow focus
- Yovel, Revelle, & Mineka (2005)
  - Obsessiveness and broad vs. narrow processing

# Gaspar and Clore, 2002

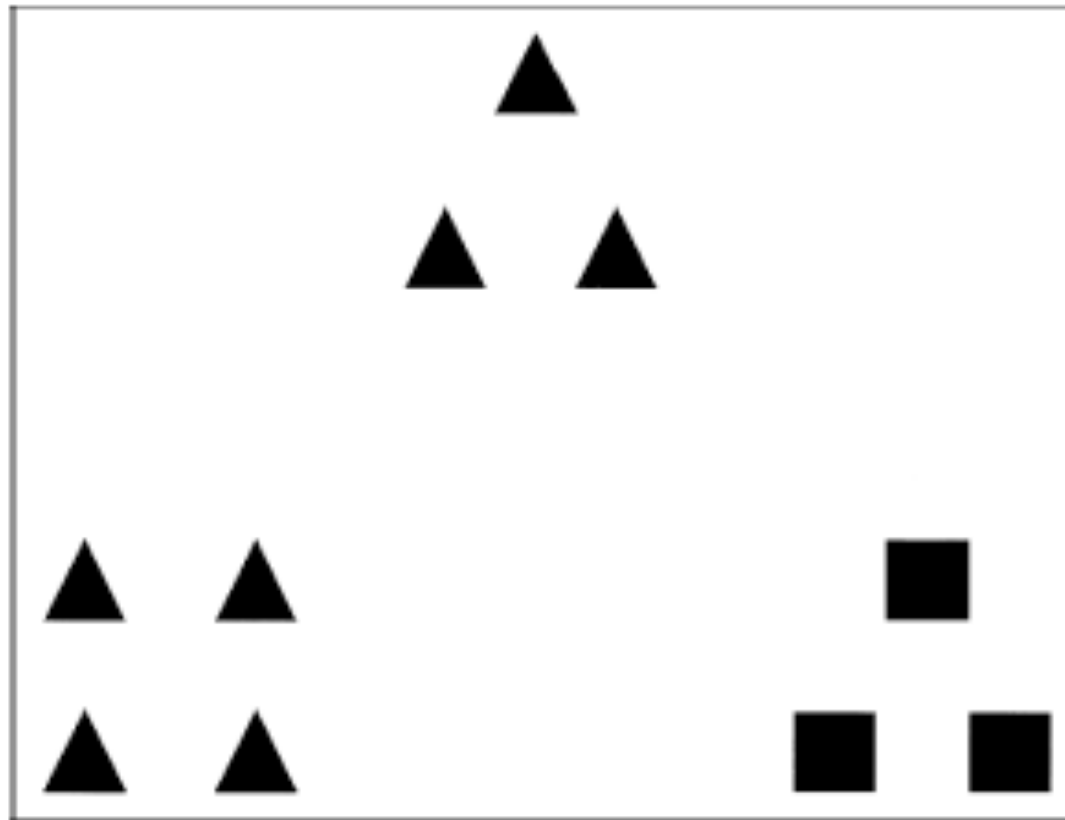


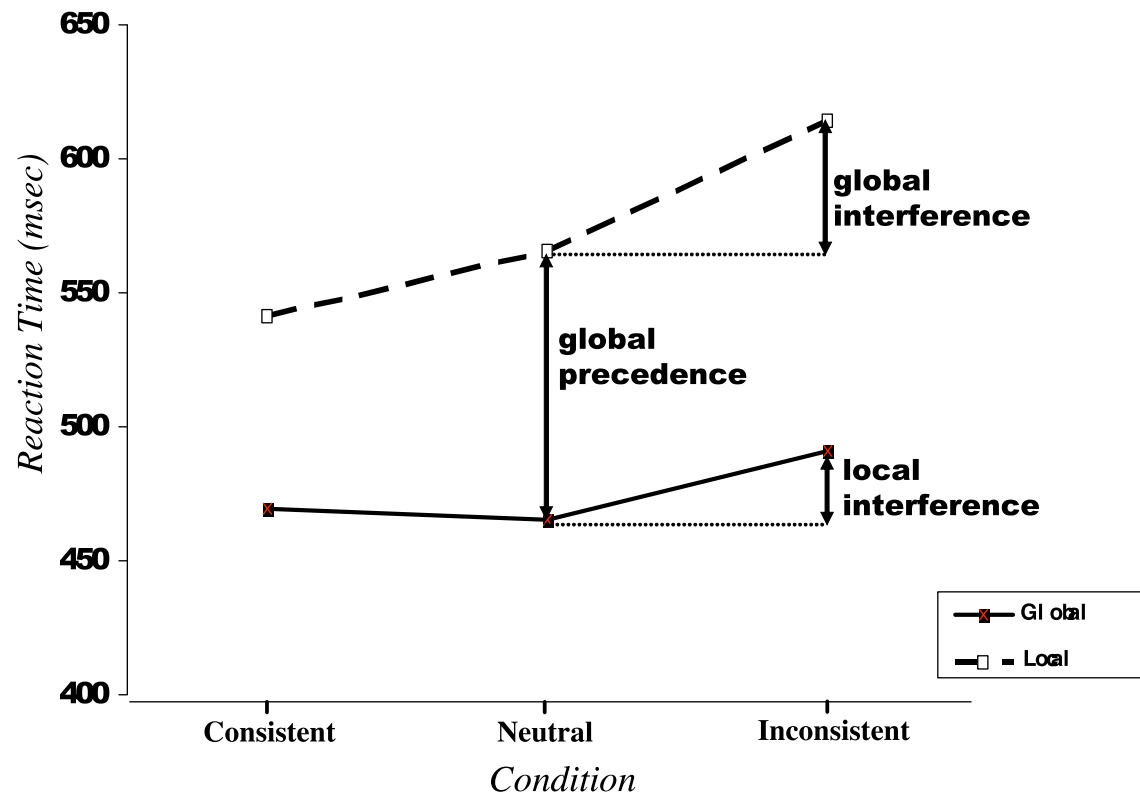
Fig. 2. Sample item from the global-local focus test (Kimchi & Palmer, 1982, p. 526). Reprinted with the permission of R. Kimchi.

# Forests and Trees

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E E  
EEEE  
E E  
E E

HHH  
H  
HHH  
H  
HHH

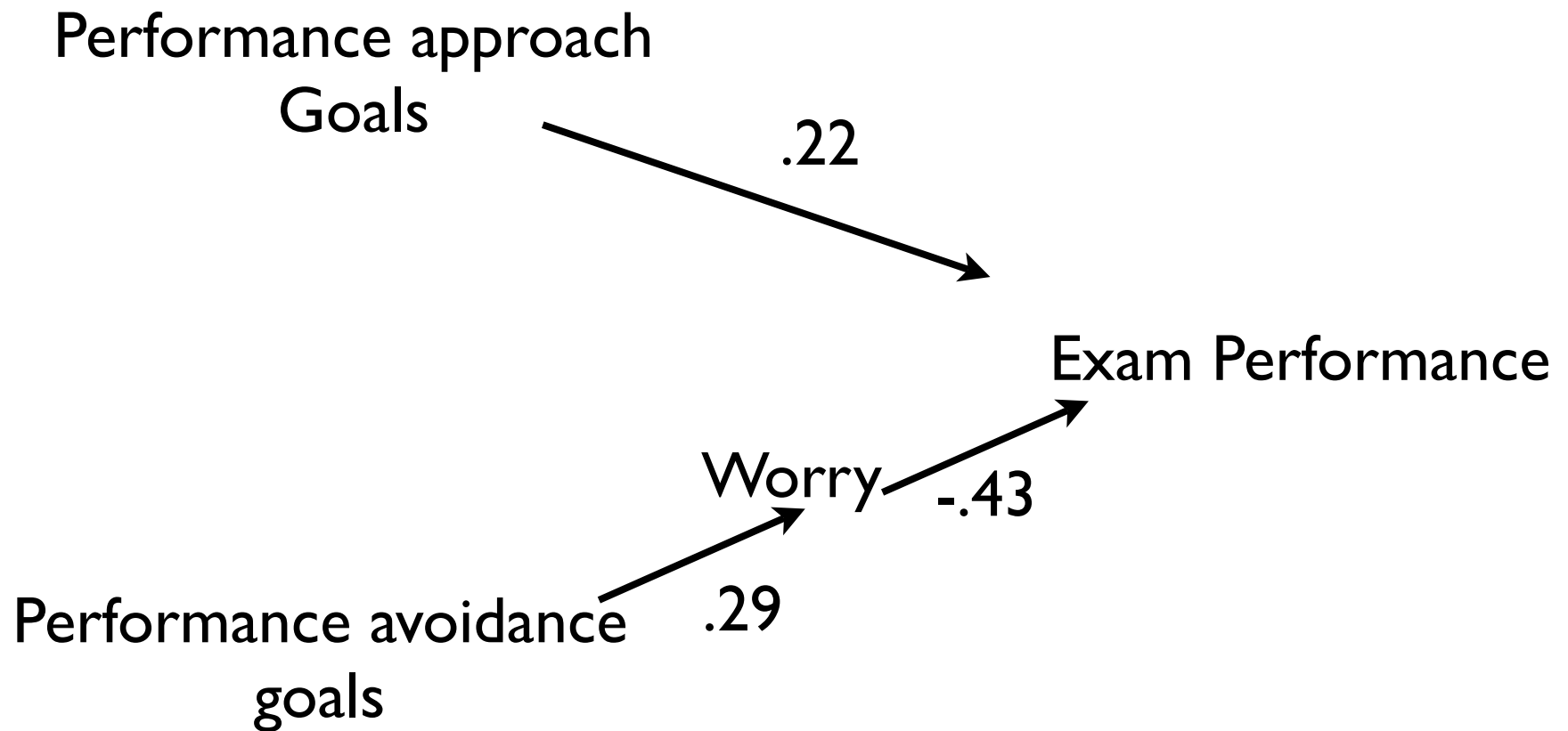
# Forests vs. Trees



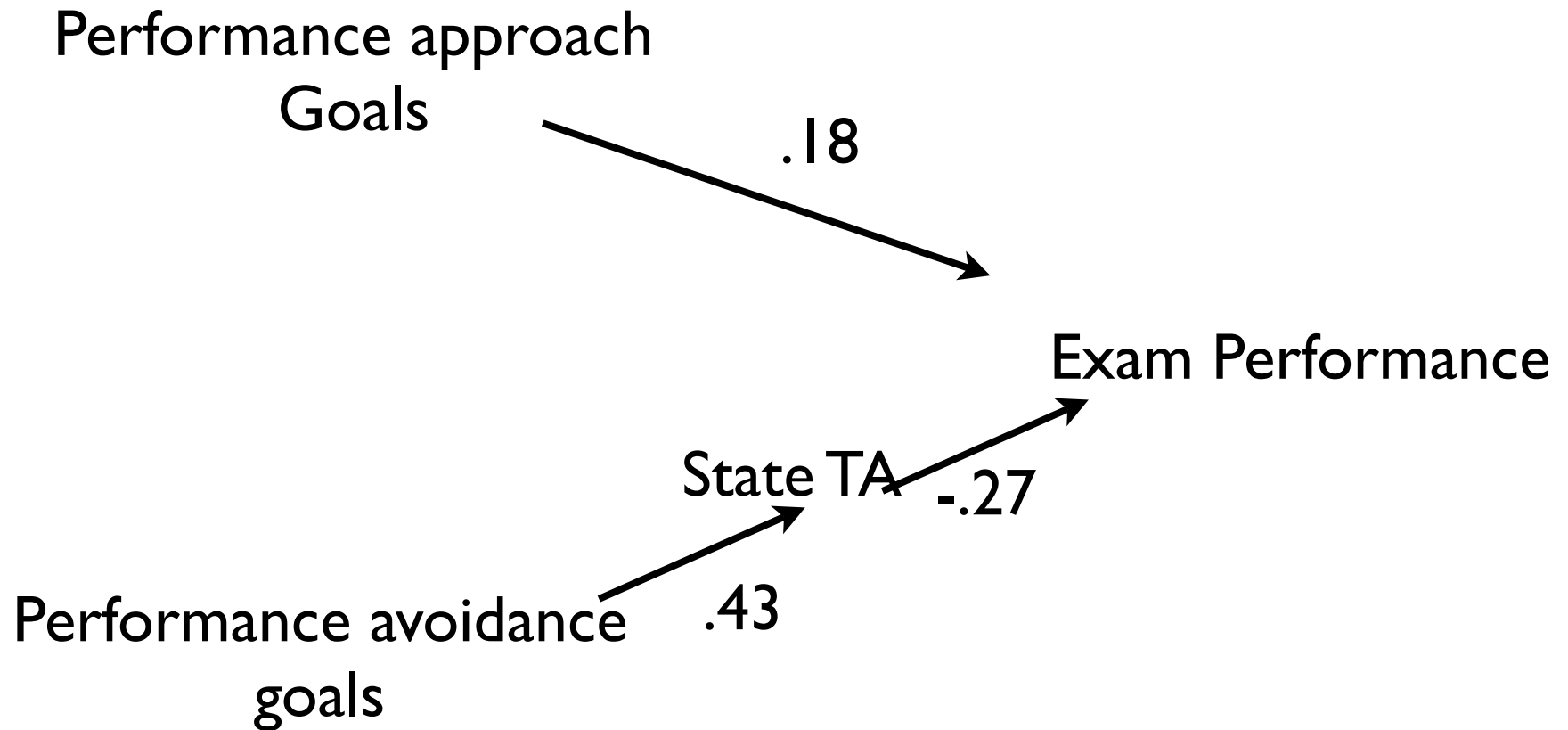
# Anxiety and achievement

- Elliott and McGregor (1999)
- Performance approach goals
- Performance Avoidance goals
- Mastery goals
- State Test Anxiety
- Worry
- Emotionality
- Exam Performance

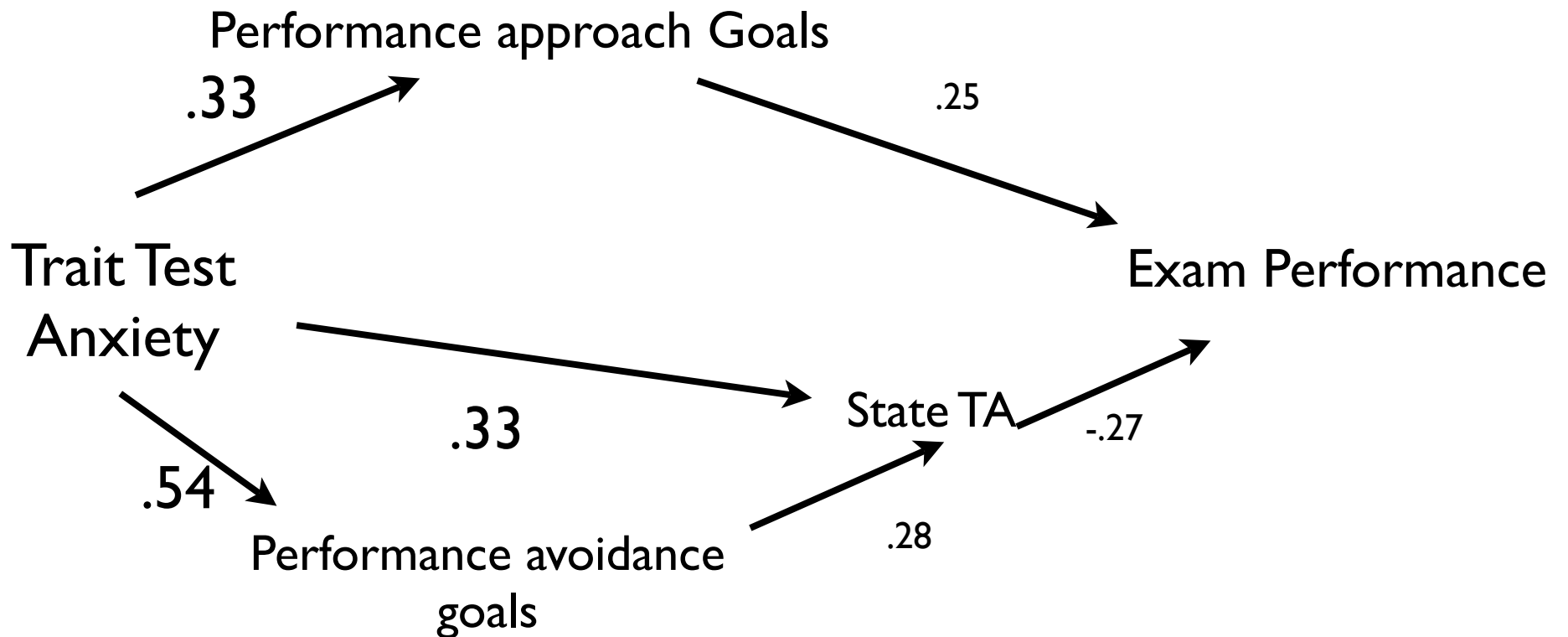
# Elliot and McGregor



# Elliot and McGregor



# Elliot and McGregor



# Anxiety and the ABCDs

- Anxiety as negative Affect
- Anxiety as avoidance Behavior
- Anxiety as cognitive bias towards threats
- Anxiety as performance avoidance Desires