

# Evolutionary Psychology

Comparative Cognition

Investigate cognitive abilities of different species

Evolutionary Psychology

How did the human mind evolve over time

Behavioral Economics

How evolution shaped decisions related to money

# Evolutionary Psychology

## Theory of Natural Selection

Variance

Individuals in species differ in physical traits

Inheritance

Individuals inherit genes suited for survival in environment

Selection

Survivors have best genes suited for environment

Adaptation

Process by which species change to environment to succeed

What is a mind?

General Purpose (Computer)

Swiss Army Knife (Bag of Tricks designed by evolution)

# Evolutionary Psychology

## Sexual Selection

Ability to attract a mate and reproduce



And as long as the gain in attracting the ladies outweighs any costs, the feature will survive,

# **Evolutionary Psychology**

## **Ecological Niche**

**Adaptation to a specific environment**

**Microbes in lava tube**

**Fish with electric field sensory information (electrical sonar)**

**Object permanence (Apes, monkeys, cats and dogs)**

**Memory expert birds (33,000 seeds in 6000 locations)**

**Transitive inference? ( $A > B$ ,  $B > C$ , therefore  $A > C$ )**

**Good for social cognition**

# **Evolutionary Psychology Cognitive Skills**

## **New Caledonian Crows**

**Tool usage: Use stiff leaves to dig out insects**

## **Baboons**

**Deception: Groom females when boyfriend can see**

## **Chimpanzees**

**Aware of Self: Dots on head in mirror are touched**

# **Evolutionary Psychology**

## **Brains and Intelligence:**

### **How are they related**

**Total Brain Size?**

**Elephants and Whales brains > 11 pounds**

**Cephalization index?**

**Brain to Body – Humans Win, then Dolphins, then Chimps**

**Proportion of neocortex?**

**Humans 80%, Chimp 50%, rodents 13%, Birds 0%**

**Von Economo Neurons**

**Fast transmission across large distances**

**Found in most smart animals**

# **Evolutionary Psychology**

## **Comparing Humans and Non-Humans**

### **Anthropomorphism**

**Over attribution of human qualities to animals**

**A guilty pooch**

**A deceptive monkey**

### **Antrhopodenial**

**Under attribution of human qualities to animals**

# A Critical Time For Evolution?

**Pleistocene Era: Begin 2 million years ago**

**Critical time for evolving human psychology**

**Difficulty in knowing for sure**



# Evolved Psychological Mechanisms?

**Tools in Swiss army knife**

**Categorization**

**Typicality Effects**

**Adaptive advantage: Generalization**

**Memory**

**Frequent Items Remembered Better**

**Adaptive advantage: Frequent Items more important to survival**

# Evolved Psychological Mechanisms?

**Logical Reasoning tested with the Wason Selection Task**

**A**

**D**

**4**

**7**

**RULE: If a card has a vowel on one side,  
then it has an even number on the other side**

# Evolved Psychological Mechanisms?

**Cheater Detection: Performance skyrockets**

**beer**

**coke**

**22**

**18**

**RULE: If a person is drinking beer,  
then that person must be 21 or over.**

**Cheater Detection: May begin as early as 2 years old**

# Evolved Psychological Mechanisms?

## Representativeness Revisited

Tom W. is of high intelligence, although lacking in true creativity. He has a need for order and clarity, and for neat and tidy systems in which every detail finds its appropriate place. His writing is rather dull and mechanical, occasionally enlivened by somewhat corny puns and flashes of imagination of the sci-fi type. He has a strong drive for competence. He seems to have little feel and sympathy for people, and does not enjoy interacting with others. Self-centered, he nonetheless has a deep moral sense.

How Likely is Tom to be

A) Majoring in Library Science (3%)?

B) Majoring in Humanities(20%)?

People choose A by ignoring base rates of majors

Reframed with frequencies instead of percentages

Many more people solved the problem

# Evolved Psychological Mechanisms?

**Gambler's fallacy**

**Flipped Coin just came out 5 heads in a row,**

**What is  $p(\text{Heads})$  and  $p(\text{Tails})$ ?**

**Evolutionary response: Random events not useful to survive**

**The annoying case of Steve Pinker and the weather**

# Evolved Psychological Mechanisms? Behavioral Economics

## Ultimatum Game Video

<https://www.youtube.com/watch?v=1wxprBuXKXE>

# Evolved Psychological Mechanisms?

## Loss Aversion

### Framing Effects

There is an outbreak of a disease that's expected to kill 600 people.  
Two plans have been proposed to deal with the disease

\*Plan A: 200 people will be saved

Plan B:  $\frac{1}{3}$  chance that 600 will be saved  
 $\frac{2}{3}$  chance that 0 will be saved

Plan A: 400 people will die

\*Plan B:  $\frac{1}{3}$  chance that 0 will die  
 $\frac{2}{3}$  chance that 600 will die

Evolutionary Explanation: Don't lose stuff, it's scarce  
Sunk-Cost Fallacy

# Gender Differences

## Women

Better at verbal tasks (society organizers)

Better at object location memory (Gatherers)

## Men

Better at certain spatial tasks (Hunting/Football)

## Alternate idea

Men superior spatial ability to do mate-seeking behaviors

Males of polygonous species have superior spatial ability

Males of monogamous species have equal spatial ability



# The Genes Have Hidden Power

Sweaty T shirts

<https://www.youtube.com/watch?v=-drpViV5LSw>

Mate Preferences of Women

Symmetry of body and face in men is genetic marker

Fertile time of reproductive cycle = Other Symmetrical

Infertile time = Long-term partners

Moderated by partner symmetry