

# FUNDAMENTALS OF PSYCHOLOGY

Session 1

# Introduction

# Rules & Game Play

1. At all time you must have
  - A pen/pencil
  - A notebook
  - Water Bottle

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2. Deep-Shallow Game

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3. Expect Breaks, feel free to take a break

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4. Brownie points for application based questions

# Course contents

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Day 1

1. **Neurotransmitters** A view into biology of Psychology
  2. **Evolution** The boundary of psychology
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Day 2

3. **Social Psychology** How we interact with the world
  4. **Cognitive psychology**
- 

Day 3

5. **Personality Psychology** Who am I and what is me
6. **Spiritual Psychology** What is my relationship w/ myself

# Additional Discussions

1. How experiments are done
2. How to read a scientific paper



# Simplicity to Complexity

A Chess Analogy

# Neurotransmitters

## (Chemical Messengers)

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1. Dopamine

2. Serotonin

3. Oxytocin

4. Endorphins

5. Adrenaline

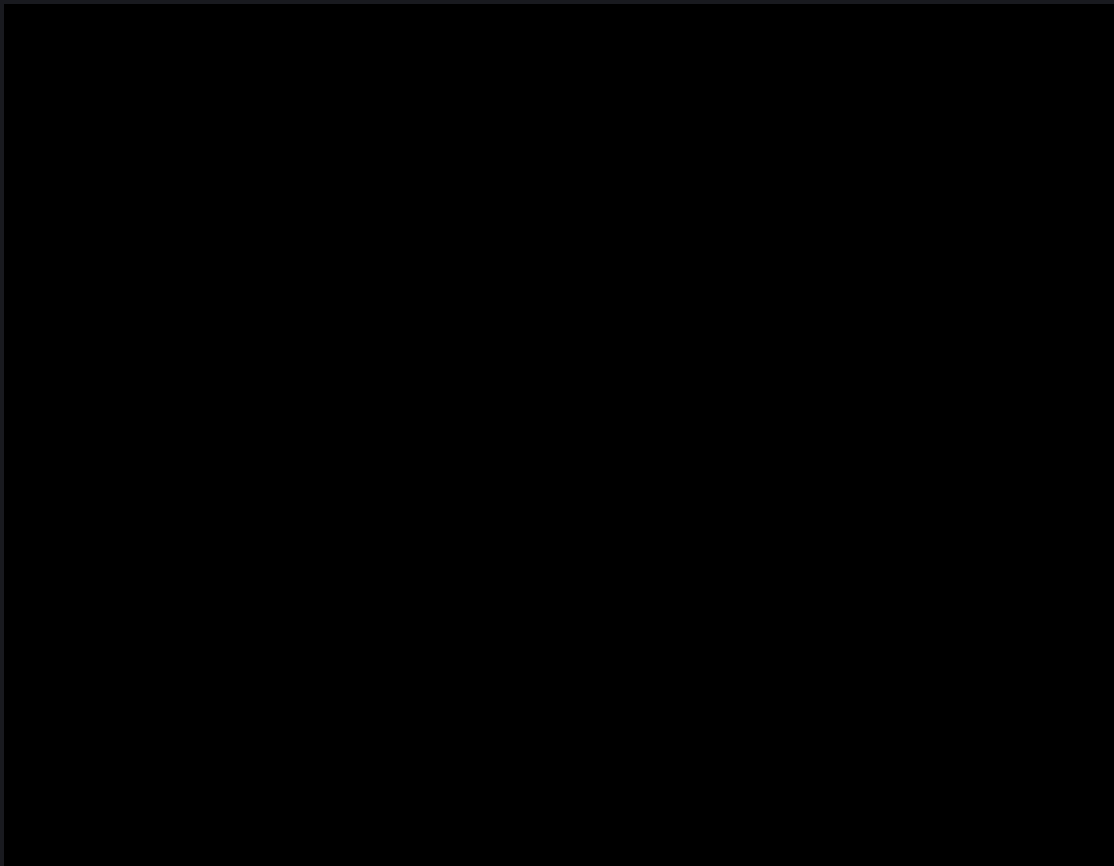
6. Cortisol

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# Dopamine



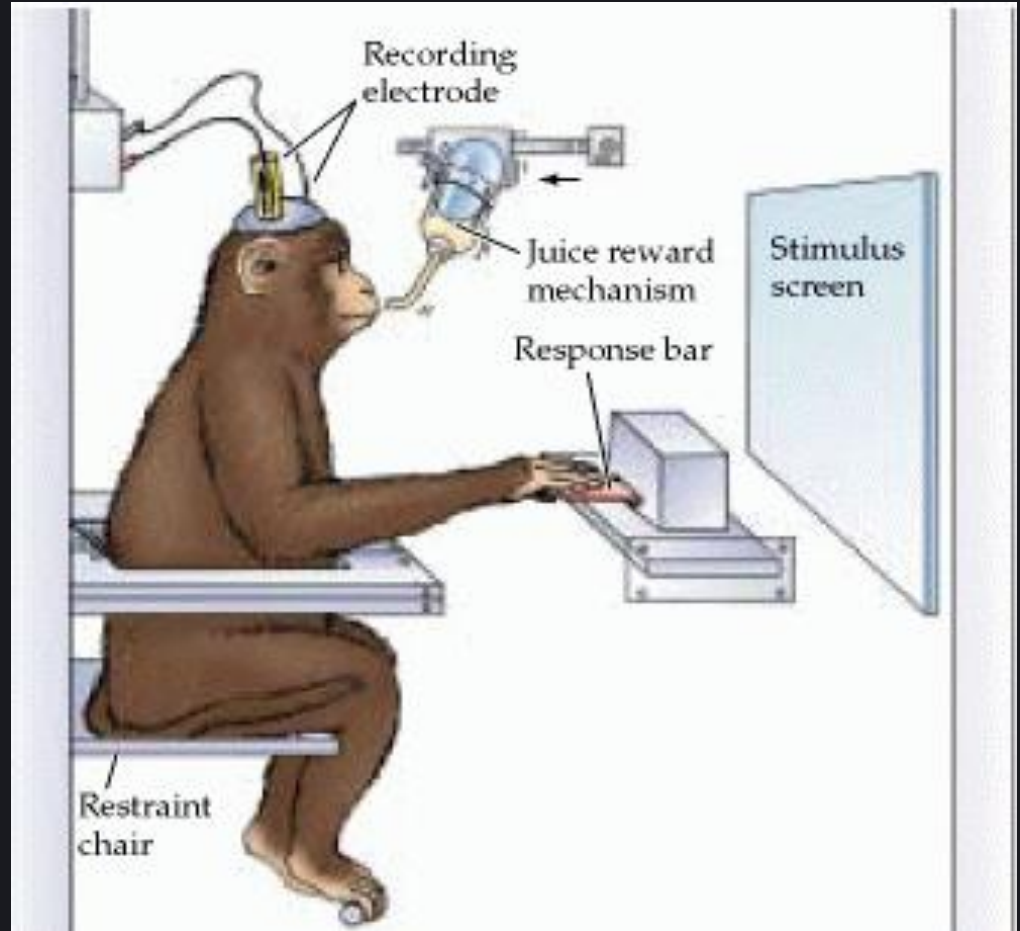
The Bright Side  
[youtube.com](https://www.youtube.com)





# Dopamine

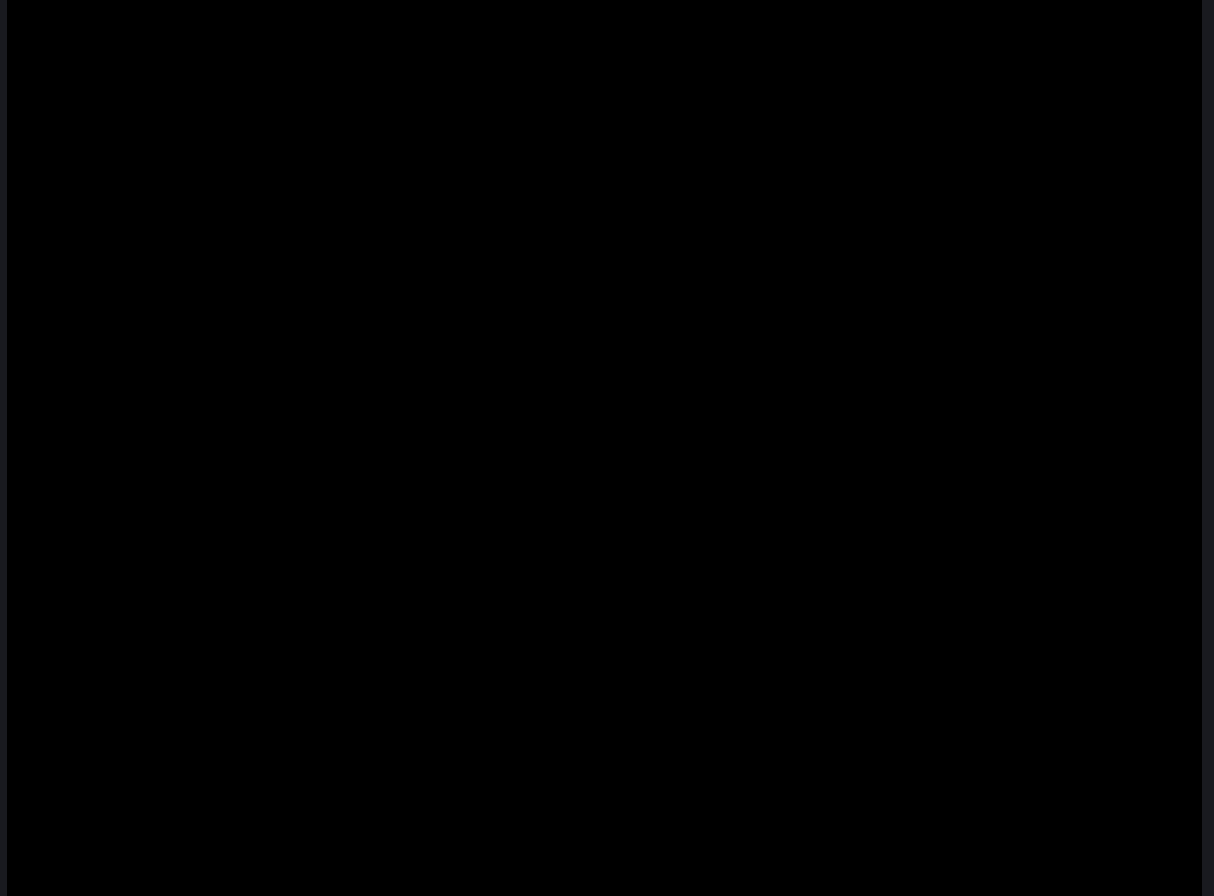
Rhesus Monkeys and  
Biological Addiction  
Biology 342 Fall 2012 by  
Chrissy Schmidt and Liz  
Pekarskaya



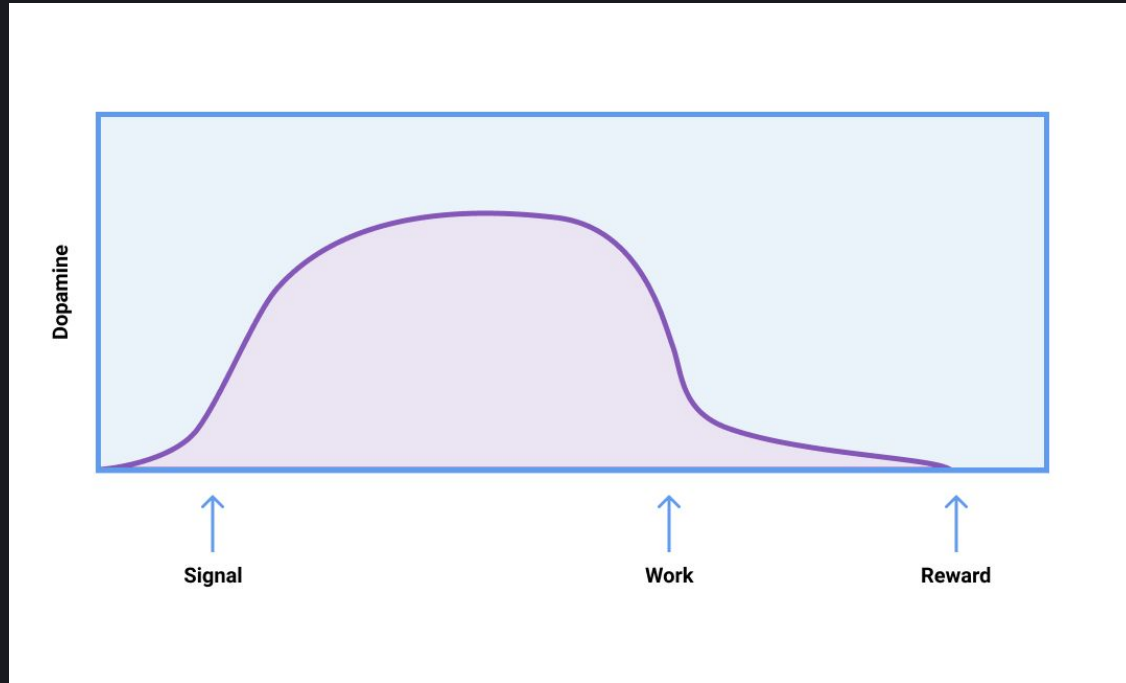
# Dopamine Sapolsky's Experiment



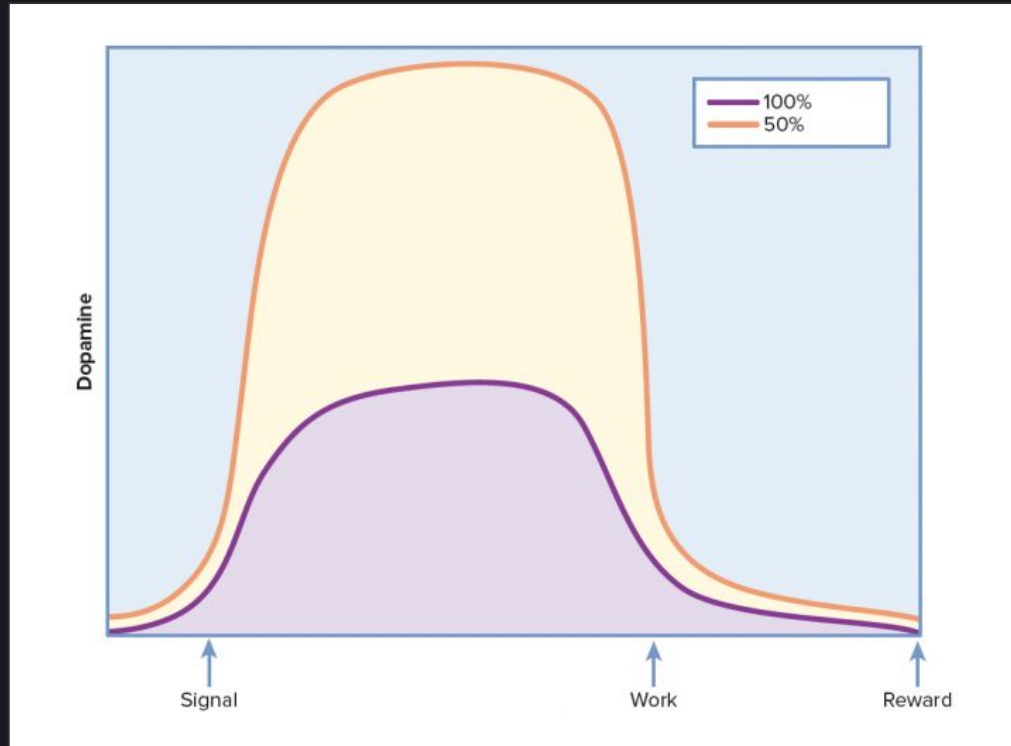
Source: YouTube



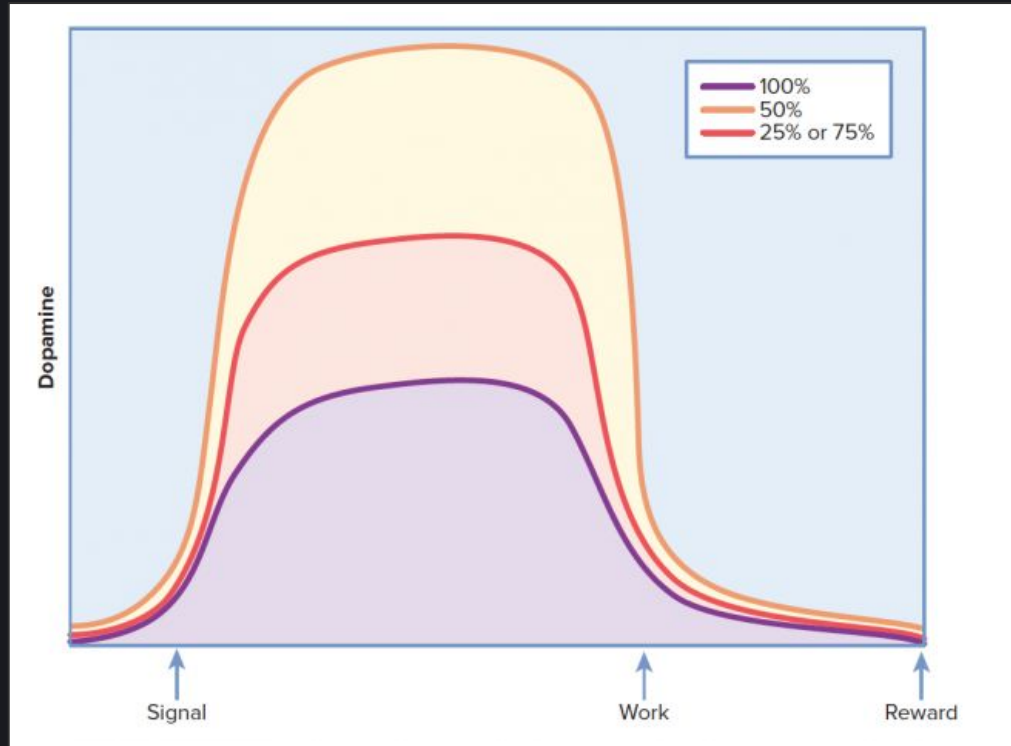
## Scenario 1 dopamine response



## Scenario 2 dopamine response



## Scenario 3 dopamine response



# Importance of Dopamine

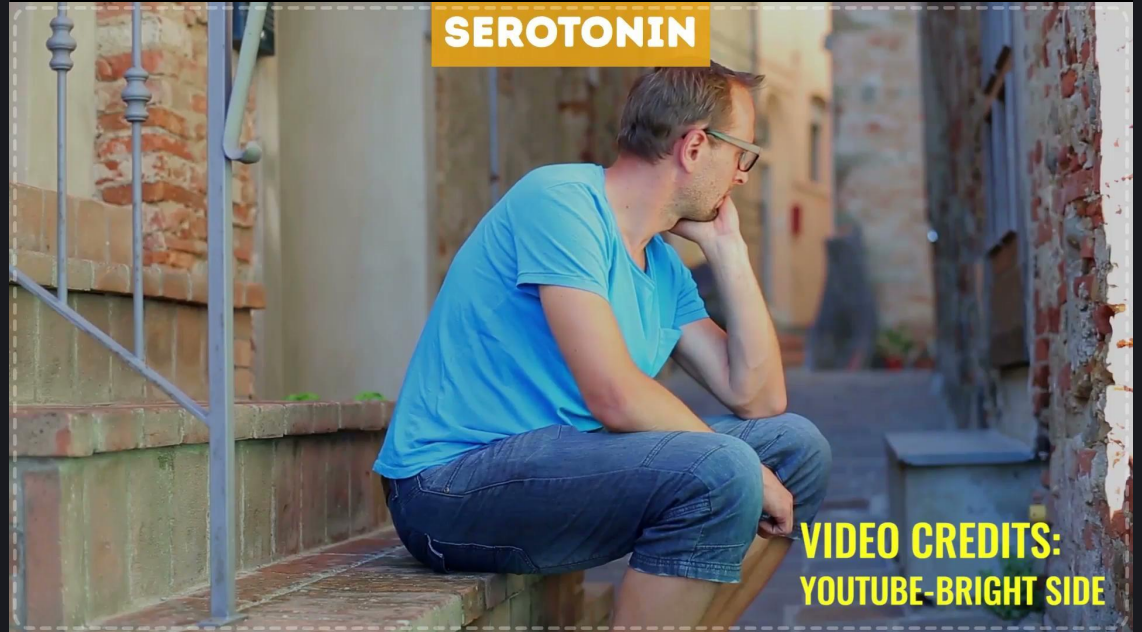
Dopamine plays an important part in

1. Learning
2. Motivation
3. Mood
4. Attention
5. Movement

# Serotonin



The Bright Side  
[youtube.com](https://www.youtube.com)



# Serotonin as Victory and Confidence hormone





# Serotonin

Mood &  
Dominance



# Importance of Serotonin

Serotonin plays an important part in

1. Regulating mood, happiness and anxiety
2. For stimulating the parts of the brain that control sleep and waking
3. Low levels of serotonin are associated with increased libido, while increased serotonin levels are associated with reduced libido.

# Oxytocin

Love hormone



The Bright Side  
[youtube.com](https://www.youtube.com)



# Oxytocin and Dogs



Oxytocin-gaze positive loop and the coevolution of human-dog bonds,  
Science, Vol 348, Issue 6232, 17 April 2015

# Importance of Oxytocin

Oxytocin plays an important part in

1. Sexual arousal
2. Recognition
3. Trust
4. Romantic attachment
5. Mother–infant bonding

# Endorphine



The Bright Side  
[youtube.com](https://www.youtube.com)



# Endorphins and physical labor/ pain



# Importance of Endorphine

Endorphine plays an important part in

1. Body's natural pain relievers
2. Exercise-induced euphoria (runner's high)
3. Endorphins have been found to be associated with states of pleasure, including such emotions brought upon by laughter, love, sex, and even appetizing food.



# Adrenaline

The Bright Side  
[youtube.com](https://www.youtube.com)

**ADRENALINE**



**VIDEO CREDITS:  
YOUTUBE-BRIGHT SIDE**

# Adrenaline

## Fight Flight Freeze



# Importance of Adrenaline

1. Adrenaline enriches your blood and gets it where it's needed
2. Adrenaline gives you superhuman pain resistance. It helps knock down your body's ability to sense pain
3. Adrenaline unlocks your absolute maximum strength (for a few moments, at least)

# Cortisol

Stress/  
Wakefulness



# Importance of Cortisol

1. Manages how your body uses carbohydrates, fats, and proteins
2. Regulates your blood pressure
3. Increases your blood sugar (glucose)
4. Controlling your sleep/wake cycle
- 5.
6. Boosts energy, so you can handle stress and restores balance afterward

# Positive and Negatives of Neurotransmitters

Neurotransmitters	Positive	Negative
Dopamin	Motivation to do good things	Motivation to open Instagram
Serotonin	Victory	Public Perception
Oxytocin	Love	Violence to protect relationship
Endorphine	Exercise	Self harm
Adrenaline	Fight threats	Makes you nervous talking to girls
Cortisol	Wakefulness	Stress

# Neurotransmitters and Psychology

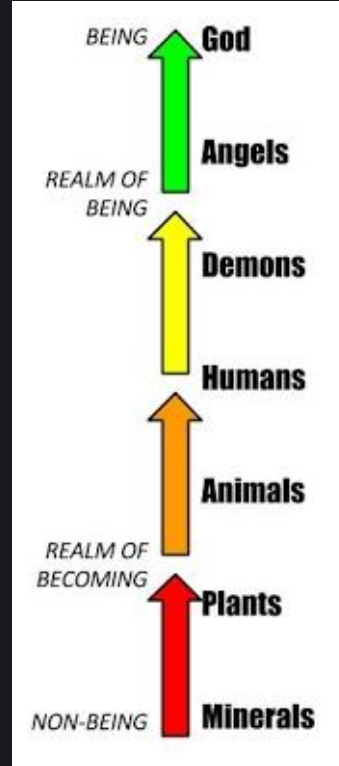
A Philosophical Discussion

# Darwin & the Creationists

## Scala Naturae

A: medieval Great Chain of Being

B: 1579 drawing of the Great Chain of Being from Didacus Valades [es], *Rhetorica Christiana*



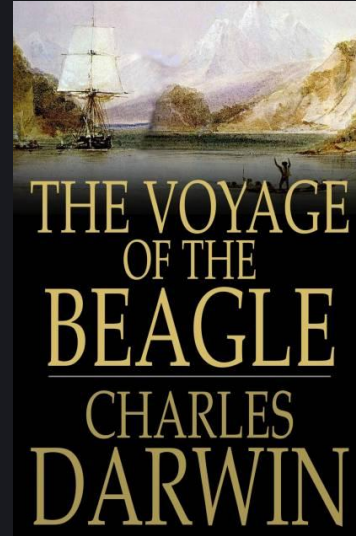
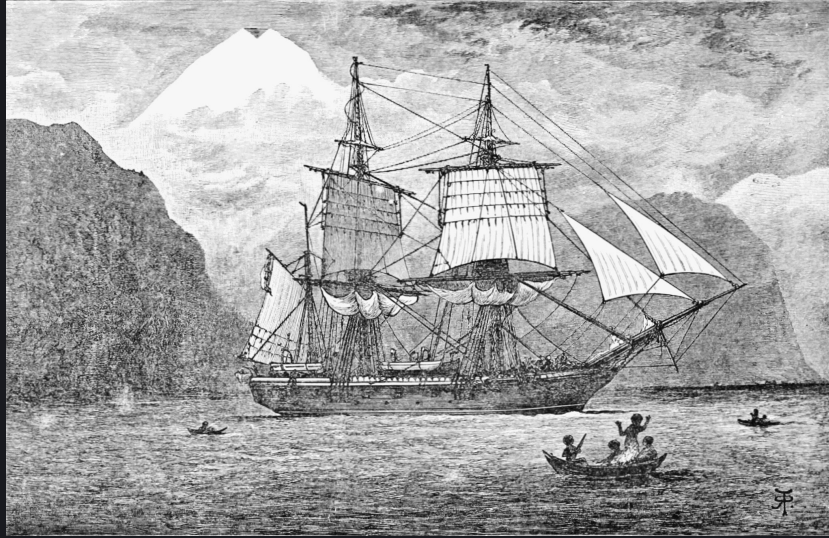
A



B



# Evolution: Darwin

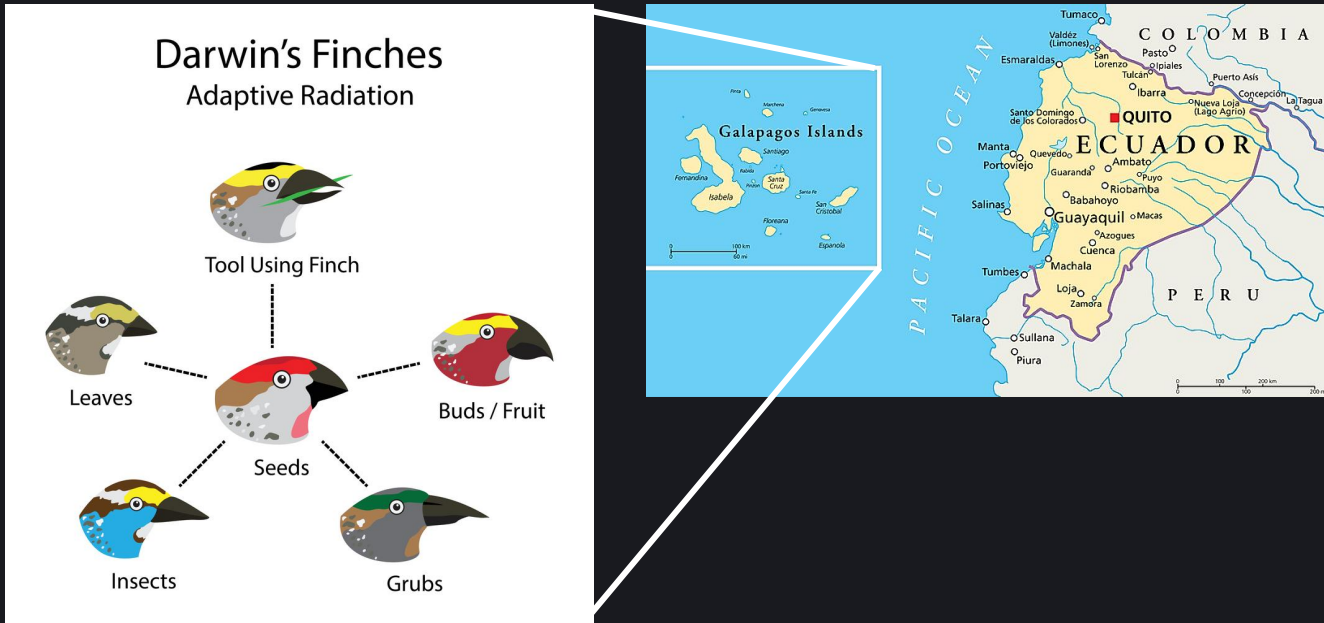


# 1. Natural Selection



# Evolutionary Mechanisms

## 1. Natural Selection

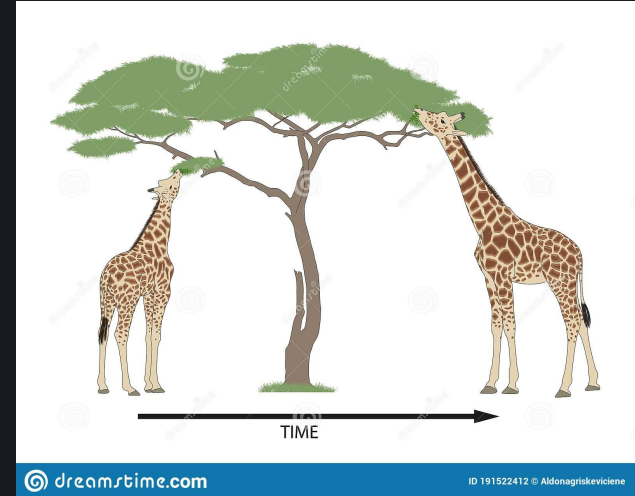


## Evolutionary Mechanisms

# 1. Natural Selection

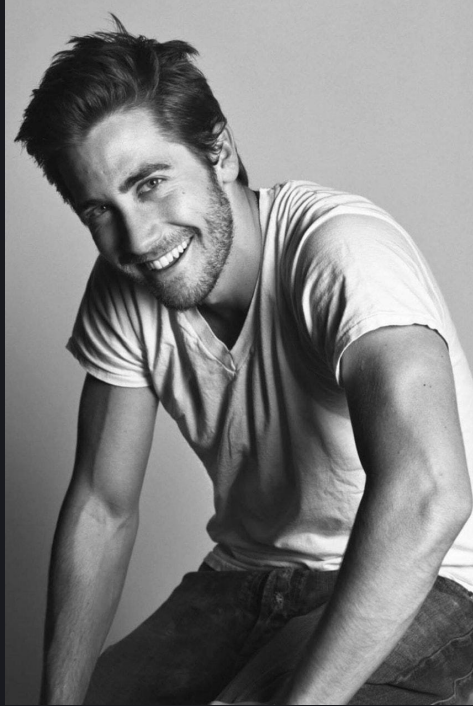
Tools:

1. Natural Pressure to Survive
2. Variation
3. Adaptation fit



# Evolutionary Mechanisms

## 2. Sexual Selection





## Evolutionary Mechanisms

# 2. Sexual Selection

Tools:

1. Selection Criteria  
(generally female driven)
2. Behavioral or  
Phenotypical adaptation
3. Selection

**Phenotype:** A phenotype is an individual's observable traits, such as height, eye color, and blood type.

**Genotype:** the genetic constitution of an individual organism.



## Evolutionary Mechanisms

### 3. Genetic Drift - Isolation

Tools:

1. Isolation
2. New Pressures or Isolated Genes
3. New adaptations and variations

## Natural Selection



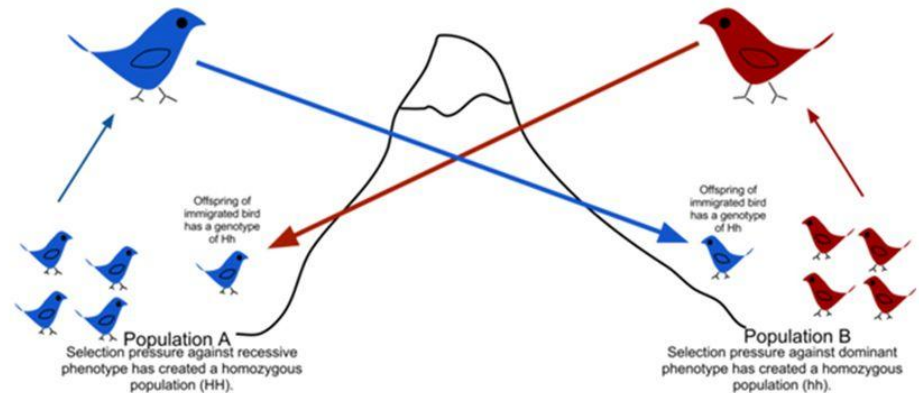
## Evolutionary Mechanisms

# 4. Gene Mixing

### Tools

1. Transfer of genotype to new population
2. New Variations
3. Pressures
4. Adaptation Fit

## Gene flow and speciation



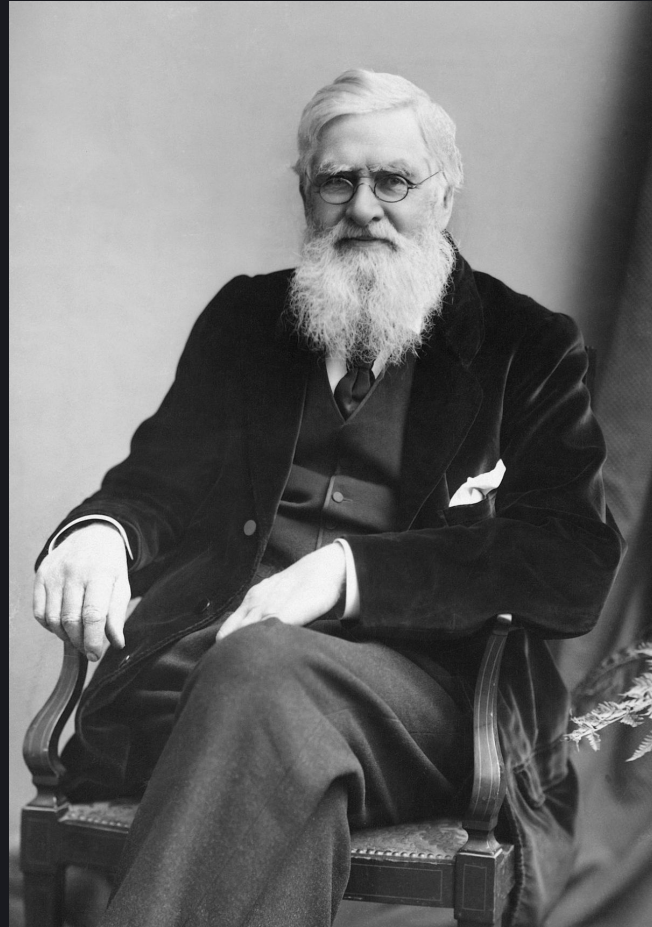


# Evolution & Psychology

1. Boundary Condition/ Base code
2. Predispositions
3. Underlying logic- Survival and Sex  
(but is it really?)

Evolutionary  
Mechanisms

# Wallace's dilemma



# Sexual Selection

# Sexual Dimorphism

Systematic difference in  
form between individuals  
of different sex in the  
same species



# Sexual Selection Beauty

Hotness vs Beauty



# Sexual studies in Evolution

1. Choosiness
2. Symmetry as an Indicator of  
Parasite/Pathogen Resistance
3. Major Histocompatibility Complex (MHC)
4. Waist-to-hip ratio
5. Selectivity

## Sexual studies in Evolution

# 1. Choosiness

In an experiment, attractive men and women were paid to approach strangers of the opposite sex and, after a brief conversation, asked one of three questions:

- “Would you go out with me tonight?”
- “Would you come over to my apartment tonight?”
- “Would you go to bed with me tonight?”

**Did men and women respond similarly?**

Sexual studies in Evolution

# 1. Choosiness

Some results...

Date?

???

Apartment?

???

Bed?

???

## Sexual studies in Evolution

# 1. Choosiness

Some results...

Date?

50% Men,  
50% Women agreed

Apartment?

69% Men,  
6% Women agreed

Bed?

75% Men,  
No women agreed



## Sexual studies in Evolution

# 1. Choosiness

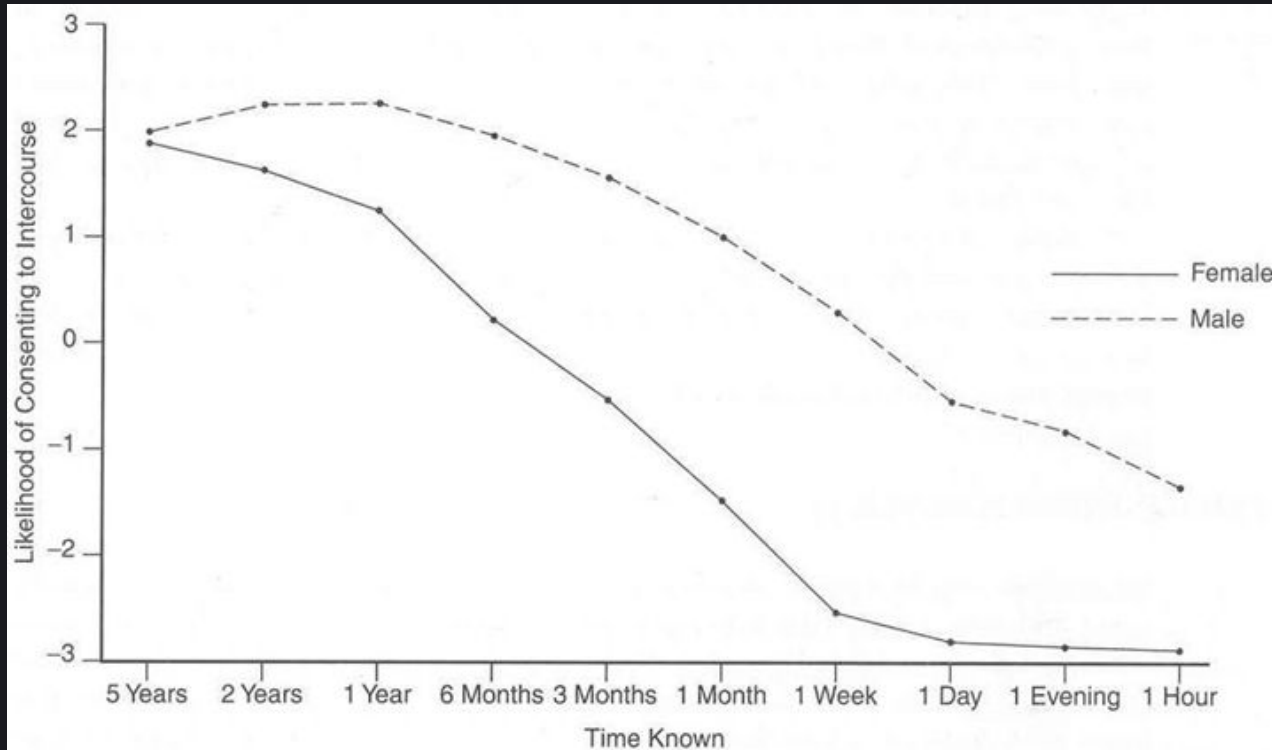
Buss and Schmidt (1993), asked men and women to rate how likely they would be to consent to sexual intercourse with someone they viewed as desirable, given that they had known the person for various periods of time.

Participants rated their willingness on a scale from -3 (definitely not) to +3 (definitely yes)

**What do you think they found?**

## Likelihood of Consenting to intercourse

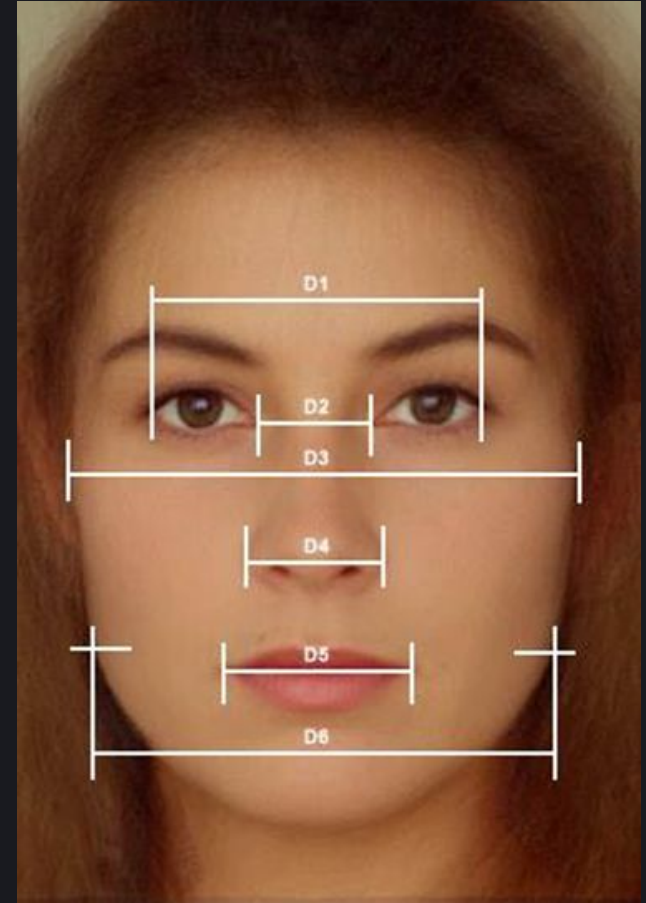
Men consistently indicate a greater willingness to engage in sexual intercourse than women



## Sexual studies in Evolution

### 2. Symmetry as an Indicator of Parasite/Pathogen Resistance

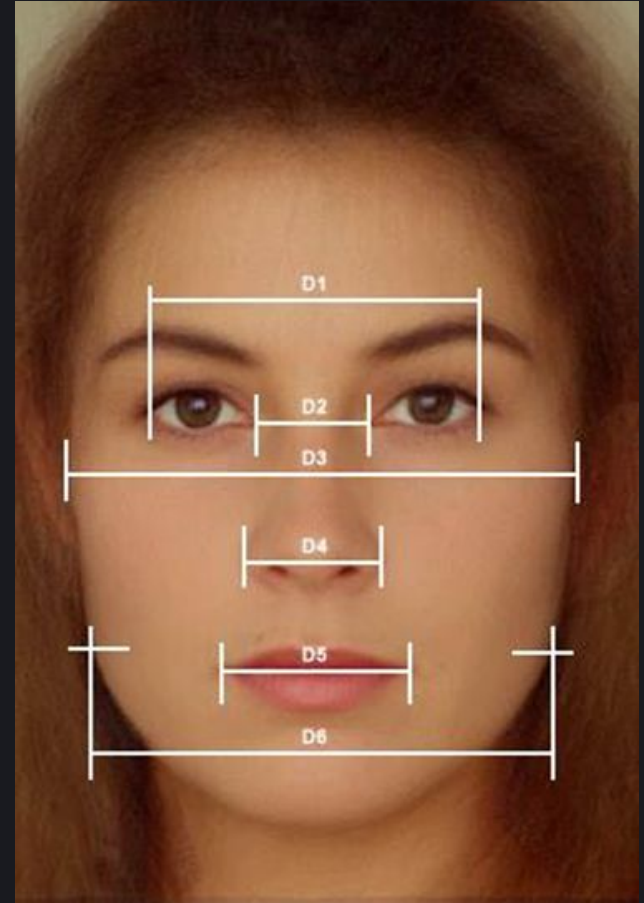
- Faces constitute a life-long “medical record”
- Parasites and pathogens drain the bodies resources and disturb normal processes of growth and development
- These disturbances leave small but permanent traces



## Sexual studies in Evolution

### 2. Symmetry as an Indicator of Parasite/Pathogen Resistance

- No face is perfectly symmetrical
- It has been found that the smaller the deviation from perfect symmetry, the more attractive the face is judged to be
- Found in research using computer morphing techniques
- True for both men and women



## Sexual studies in Evolution

### 3. Major Histocompatibility Complex (MHC)

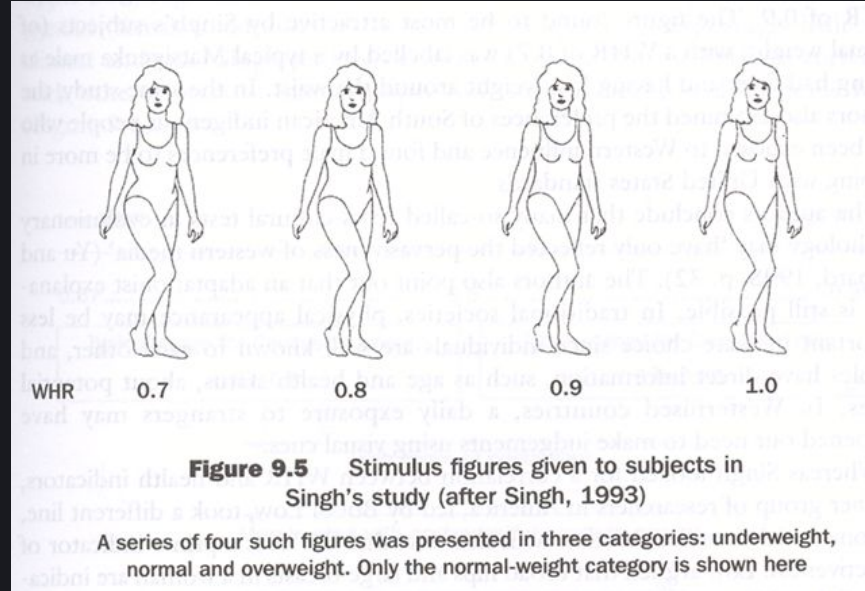
The preference for MHC discordant mates is based on odor.  
T-shirt studies

- Men are given a clean t-shirt and asked to wear it without showering or using scented products for two days.
- At the end of this period
- They contribute the shirt to be used as a stimulus in scent preference tests
- Research confirms that women rate odor as a more important criterion than men do
- Women rate odor as the most important physical characteristic of a potential mate.

## Sexual studies in Evolution

# 4. Waist-to-hip ratio

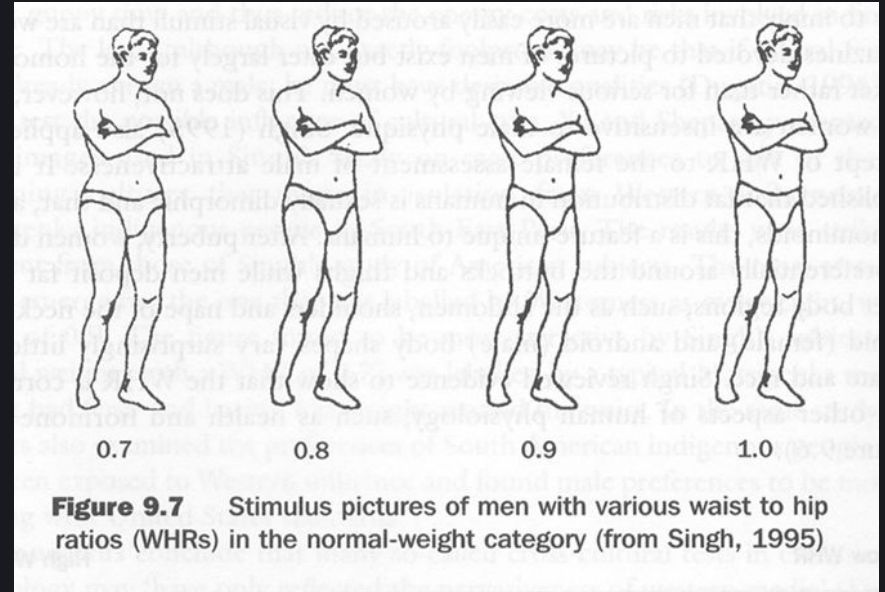
- Men prefer partners with a low waist-to-hip ratio
- This effect is not dependent on weight



## Sexual studies in Evolution

# 4. Waist-to-hip ratio

- Women prefer men with higher waist-to-hip ratios around 1.0



## Sexual studies in Evolution

# 5. Selectivity

Kenrick (1993)

Asked people to specify the minimum ranking of an acceptable partner on a series of characteristics

Status, agreeableness, emotional stability, attractiveness

Asked about these minimum percentile rankings for several levels of involvement

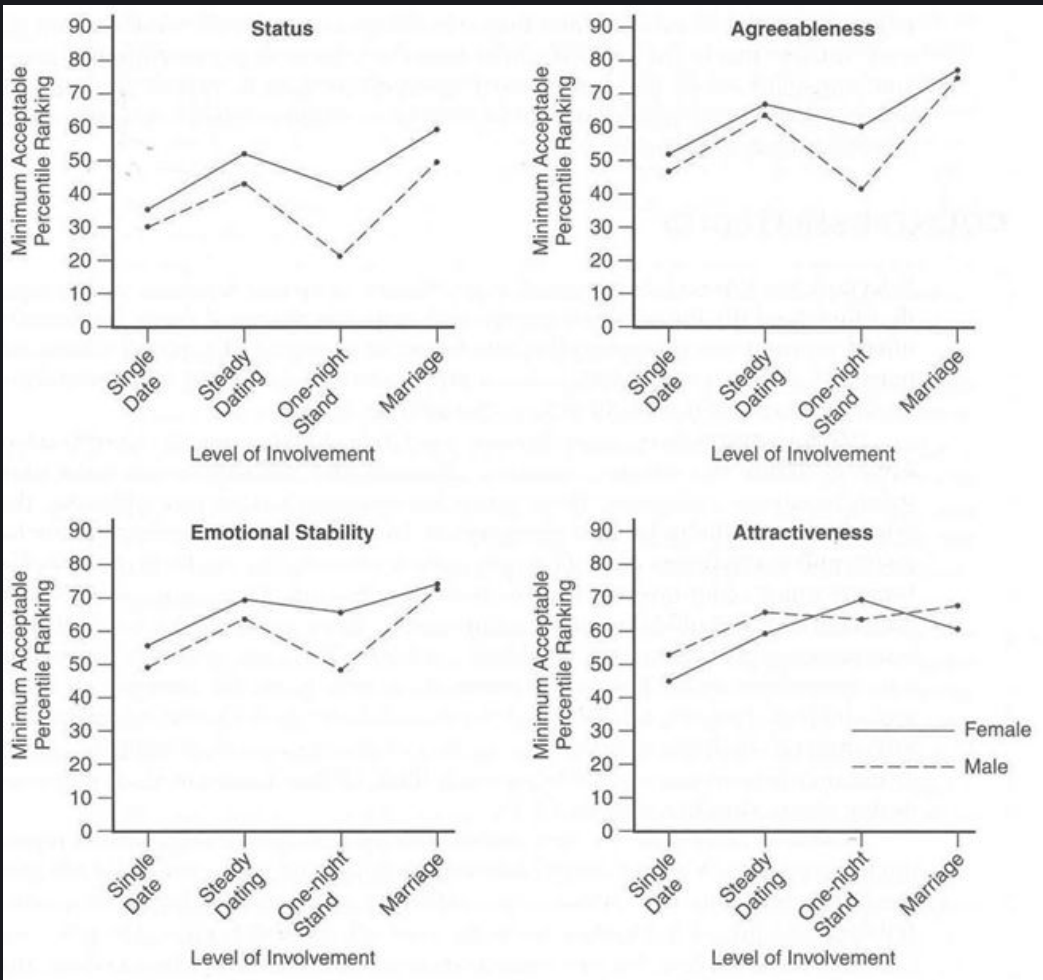
Single date, steady dating, one-night stands, marriage



# Sexual studies in Evolution

## 5. Selectivity

Kenrick, D. T., Groth, G. E., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal of Personality and Social Psychology*, 64(6), 951-969.



# Nature & Culture

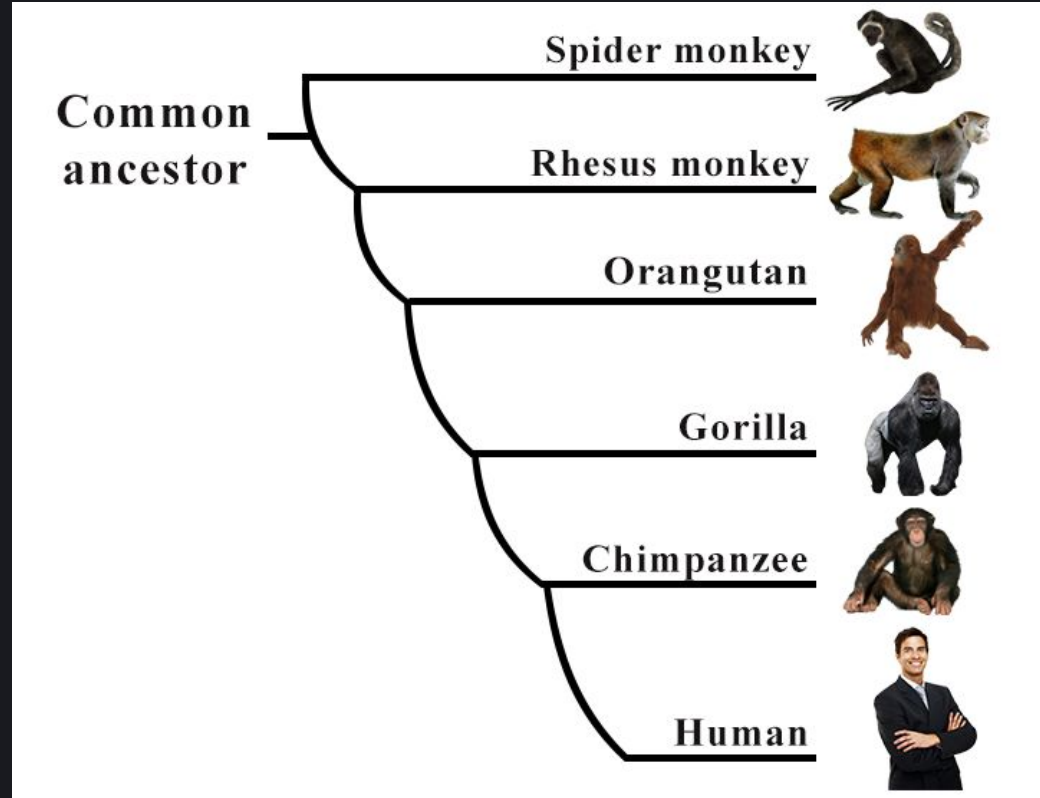


# How Evolutionary Thinkers Think



# 1. Similarity with animals with common parentage

Compare behaviour

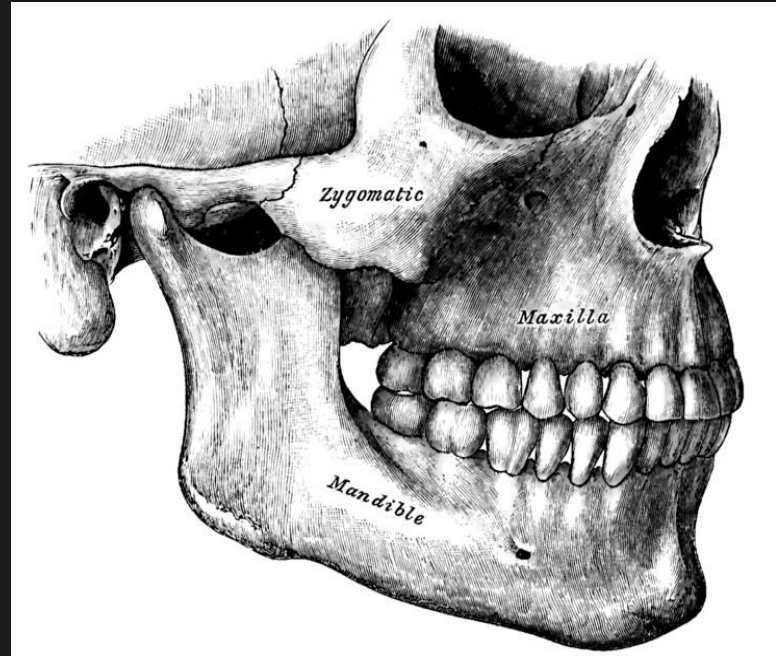
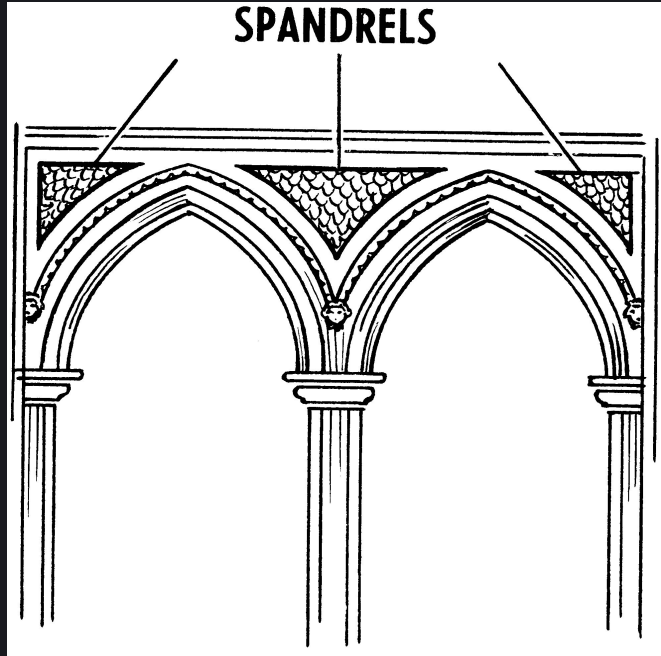


## 2. Compare other data

- Genetic
- Cellular
- Anthropological
- Paleontological
- Behavioral.

# **Circular Logic and Forced Explanations (Philosophical Take)**

# Spandrel



# Exaptation

As a trait evolved for other usages, and later co-opted for its current function.

➤ feather



Gould & Vrba(1982)



End.