

FUNDAMENTALS OF PSYCHOLOGY

Session 1

Course contents

Day 1

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

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

Neurotransmitters

(Chemical Messengers)

1. Dopamine

2. Serotonin

3. Oxytocin

4. Endorphins

5. Adrenaline

6. Cortisol

Dopamine

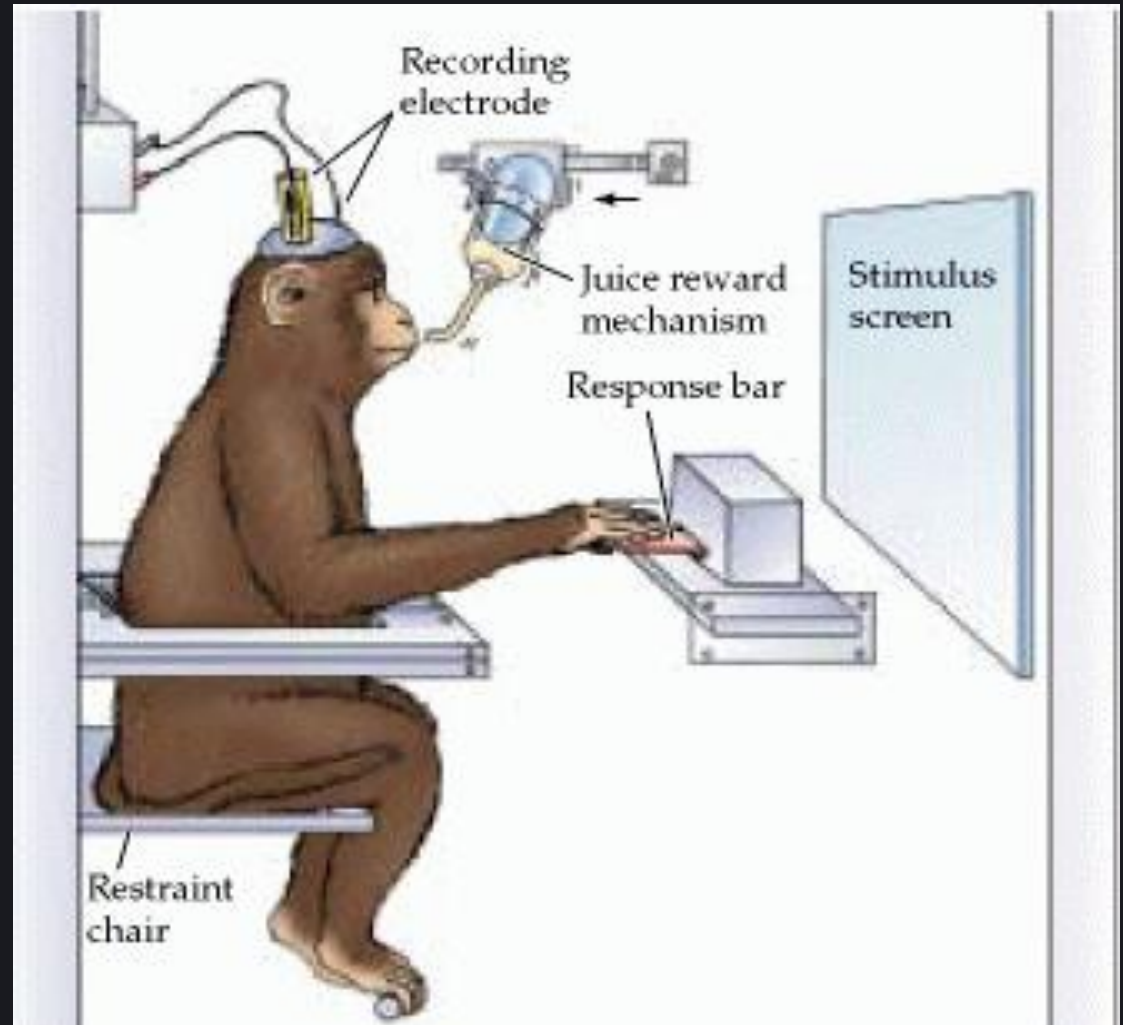


The Bright Side
[youtube.com](https://www.youtube.com)



Dopamine

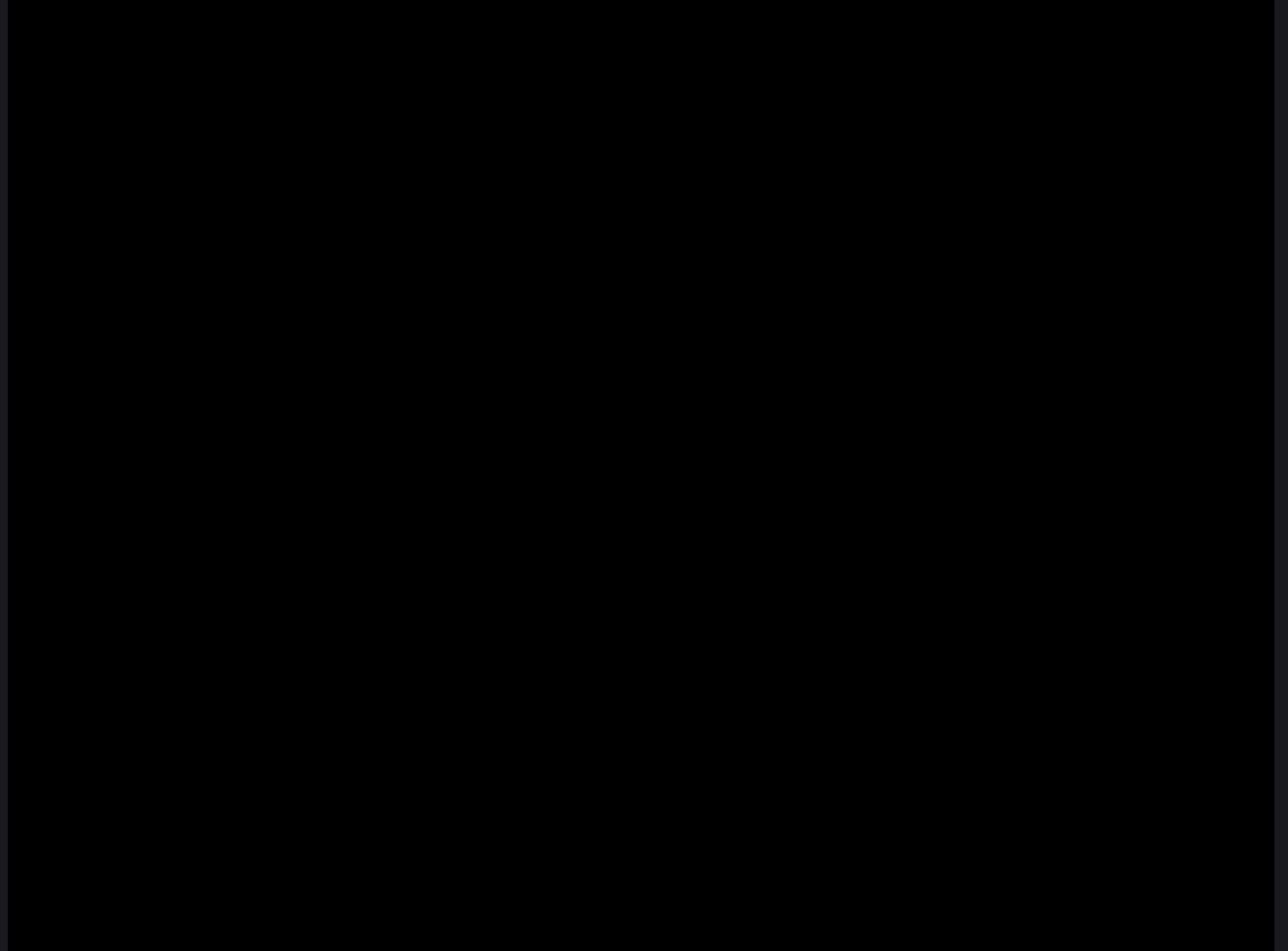
Rhesus Monkeys and
Biological Addiction
Biology 342 Fall 2012 by
Chrissy Schmidt and Liz
Pekarskaya



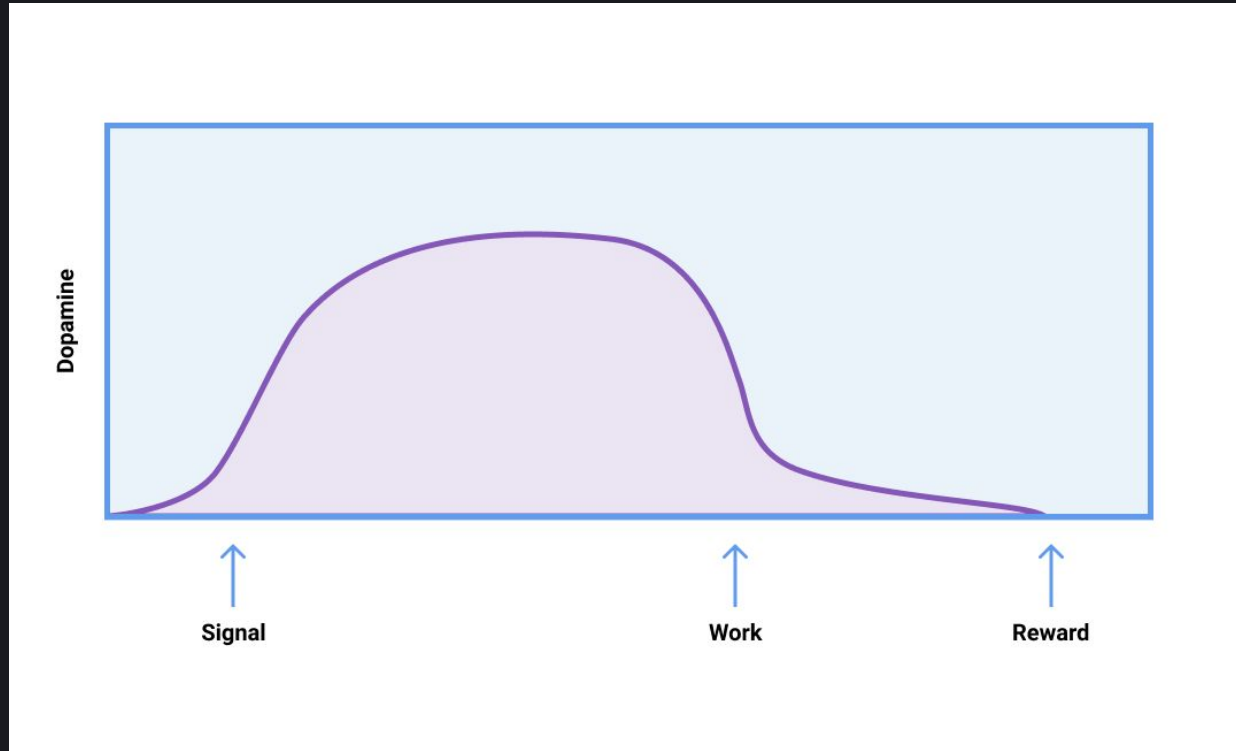
Dopamine Sapolsky's Experiment



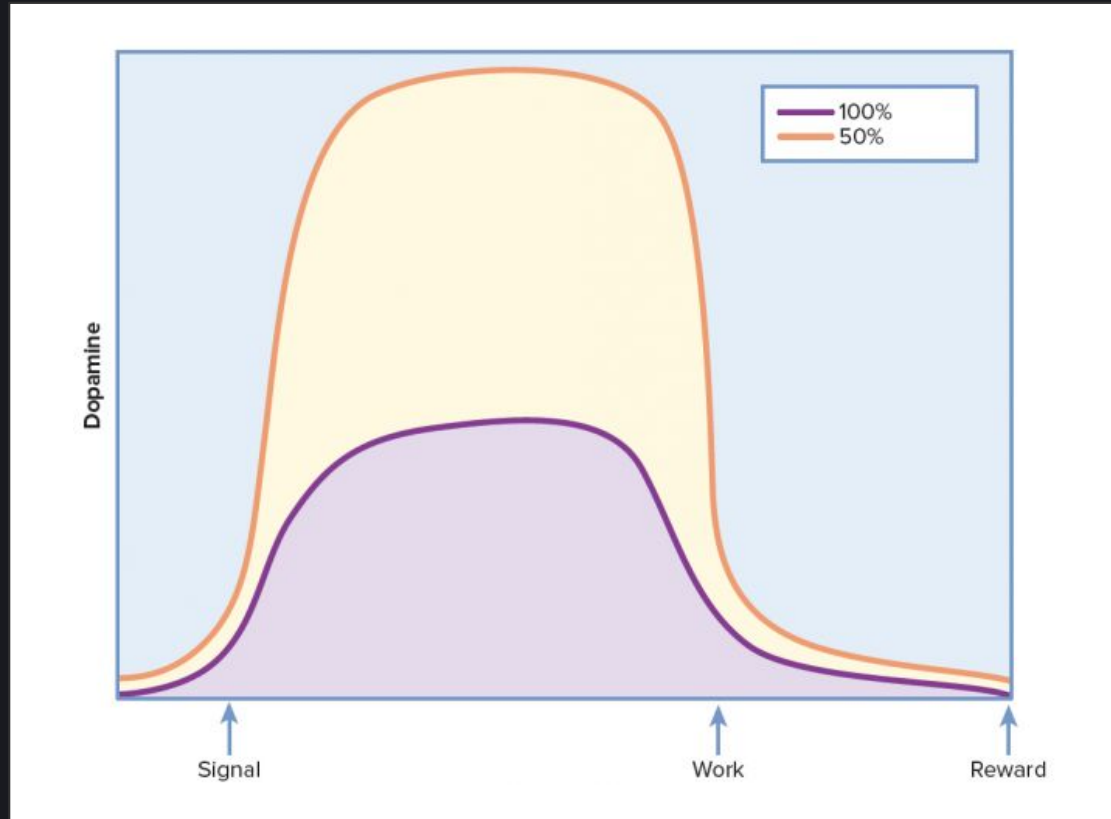
Source: YouTube



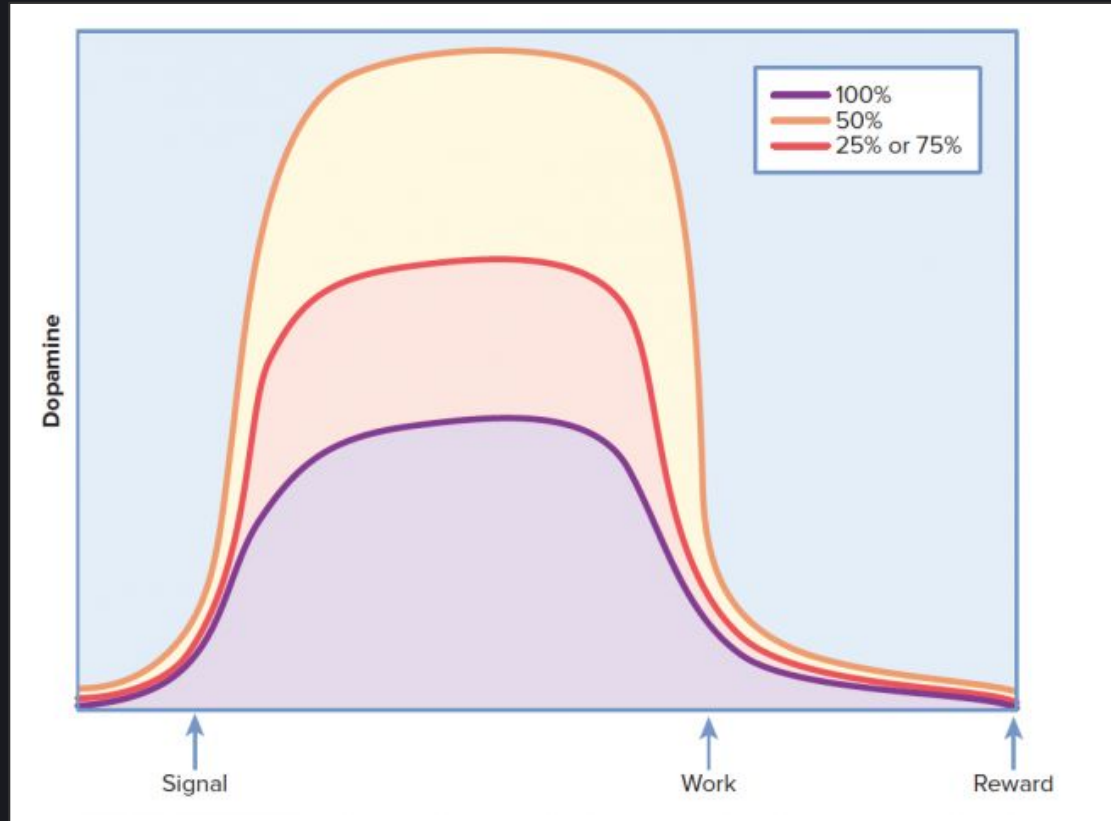
Scenario 1 dopamine response



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

**VIDEO CREDITS:
YOUTUBE-BRIGHT SIDE**

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

**VIDEO CREDITS:
YOUTUBE-BRIGHT SIDE**

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

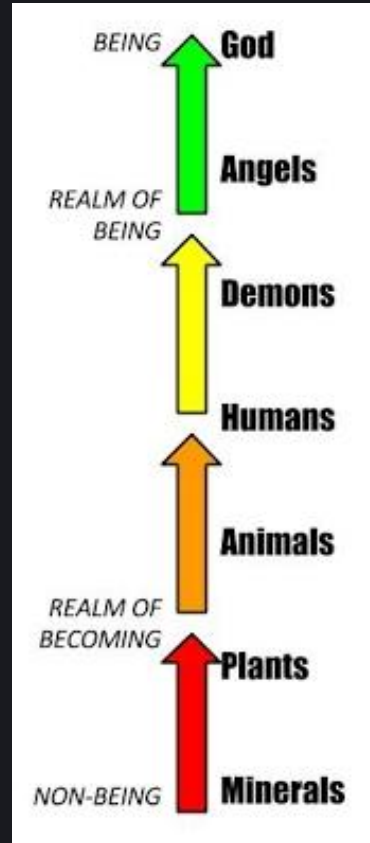
A Philosophical Discussion

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*

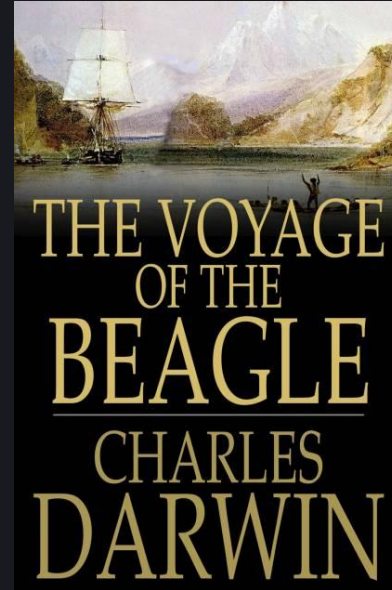
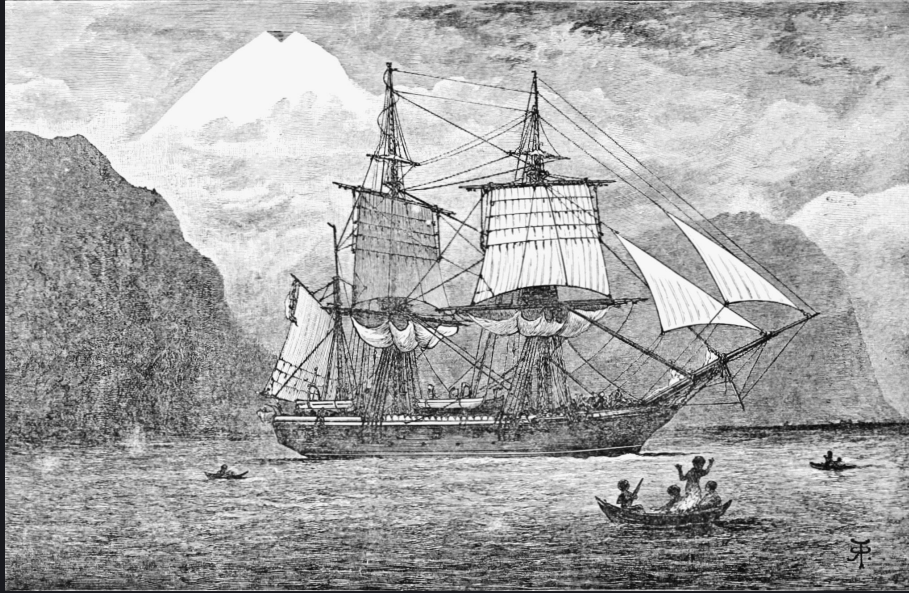


A



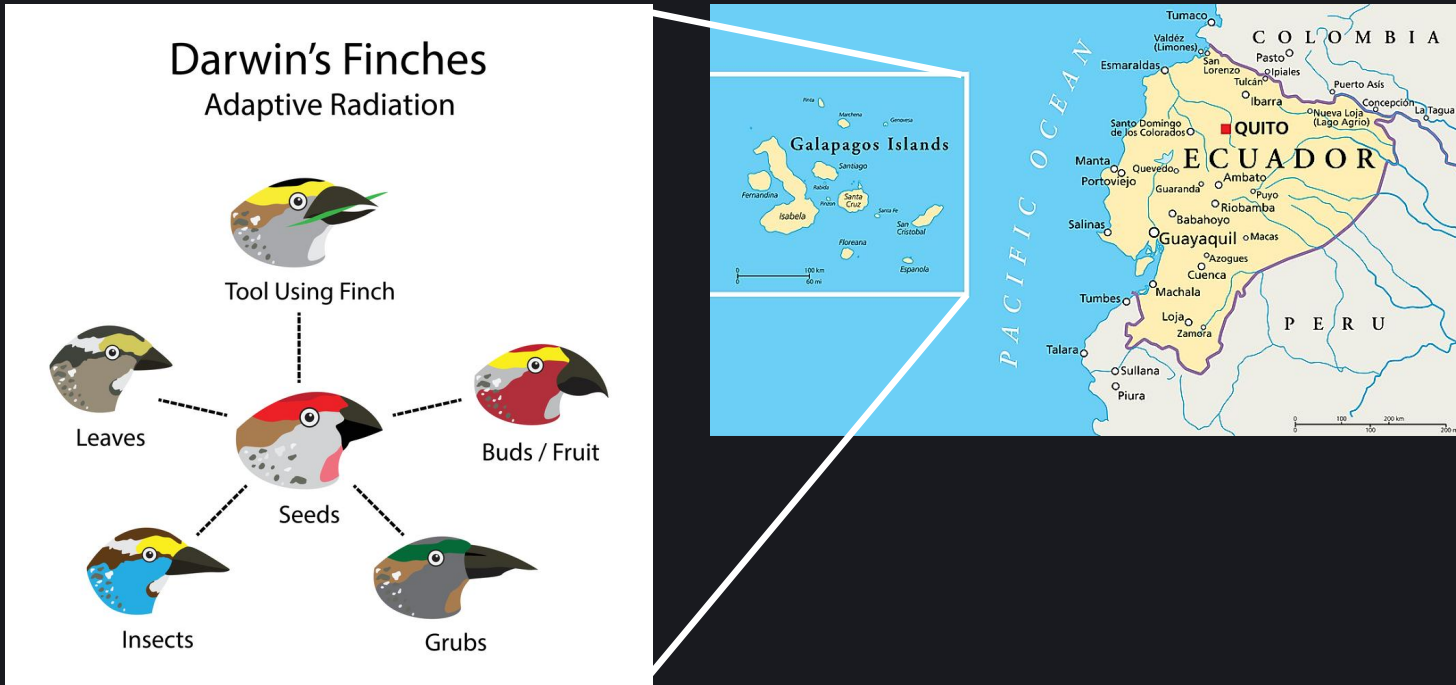
B

Evolution: Darwin



Evolutionary Mechanisms

1. Natural Selection

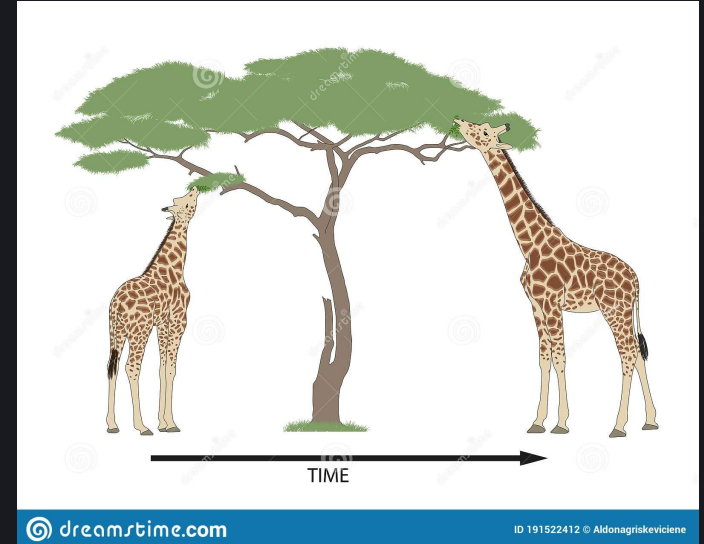


Evolutionary Mechanisms

1. Natural Selection

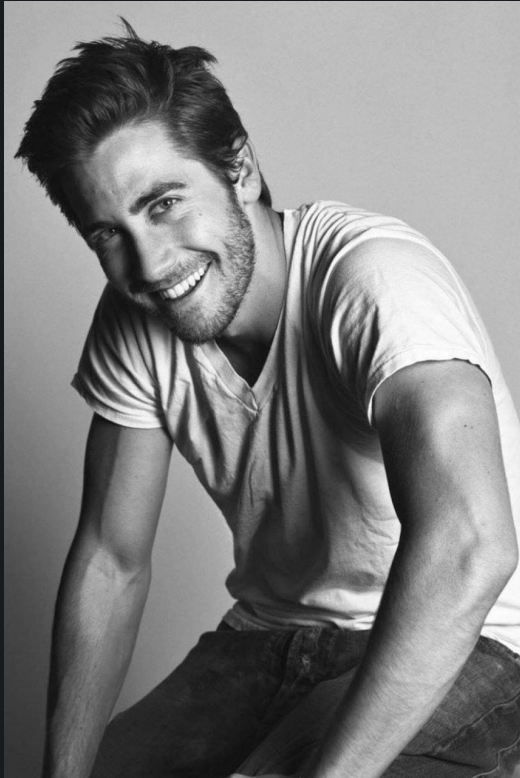
Tools:

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



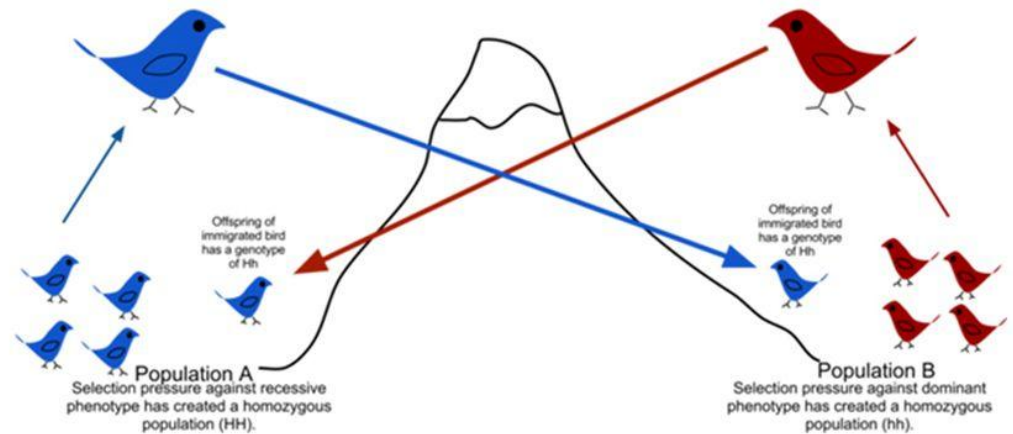
Evolutionary Mechanisms

4. Gene Mixing

Tools

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

Gene flow and speciation

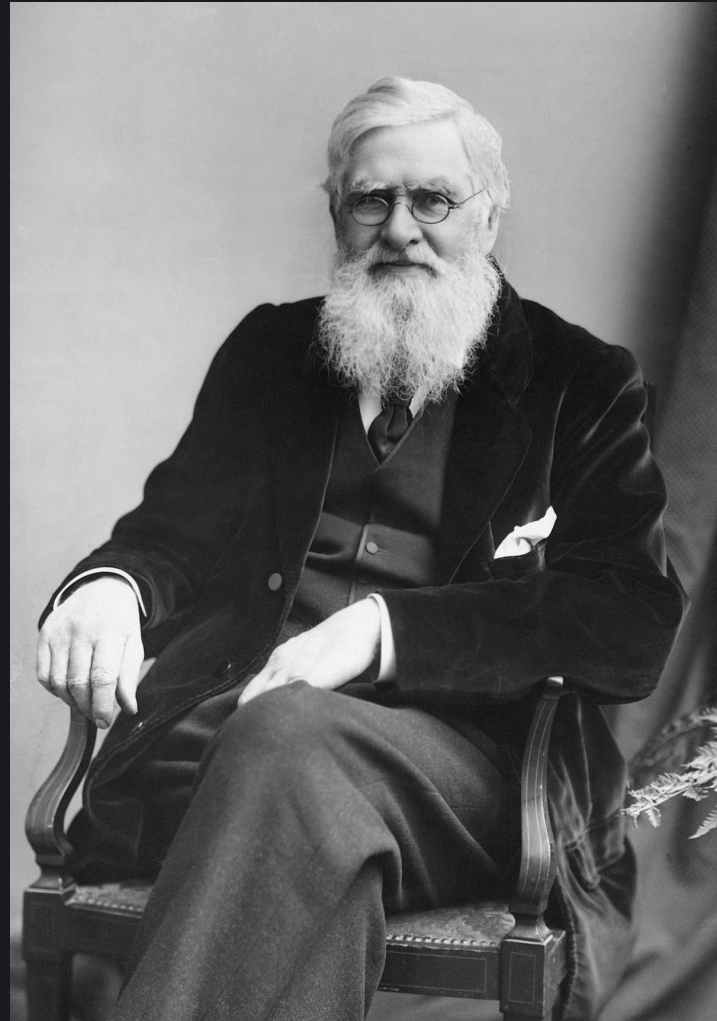


Evolution & Psychology

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

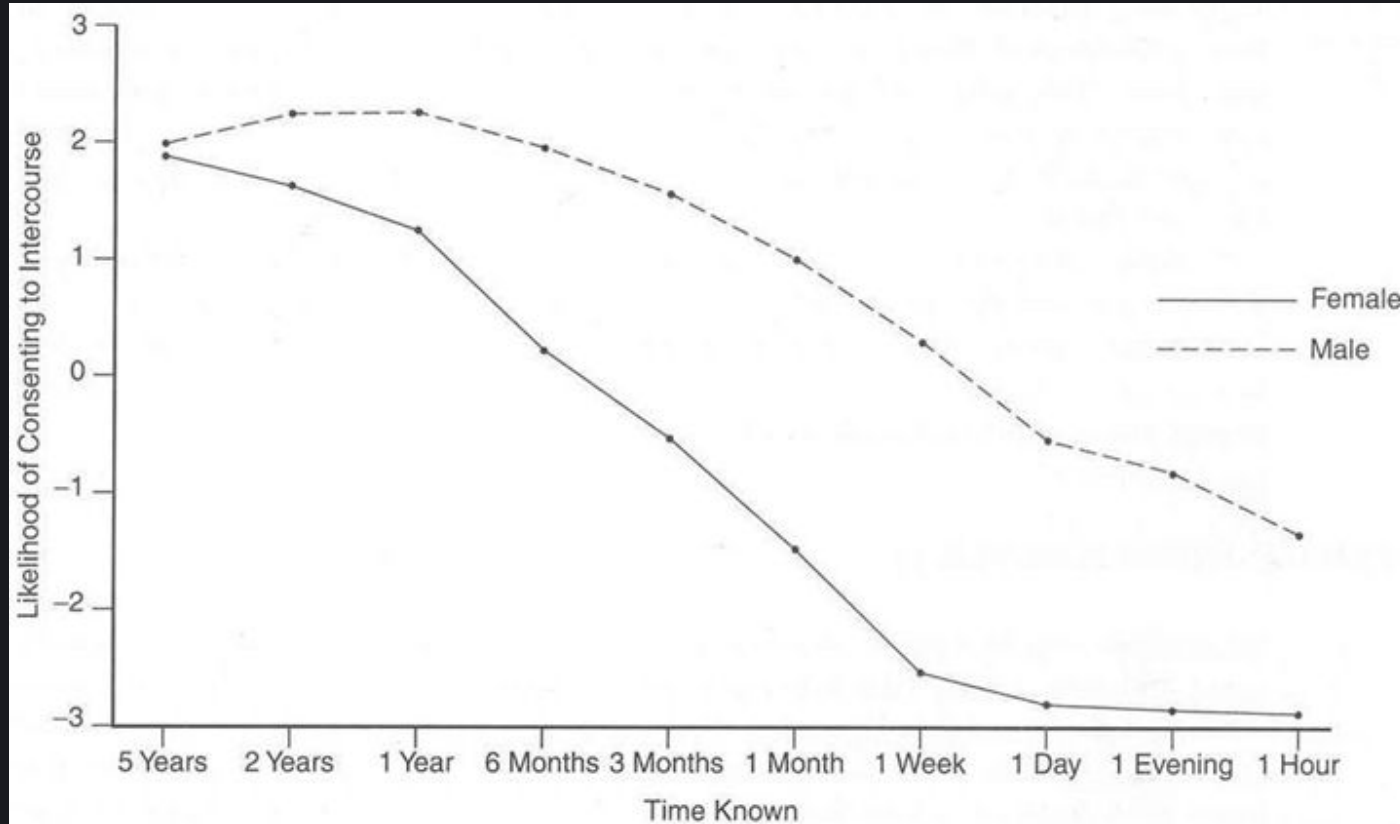
Buss and Schmidt (1993), asked men and women to rate how likely they would be to consent to sexual intercourse with someone they viewed as desirable, given that they had known the person for various periods of time.

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

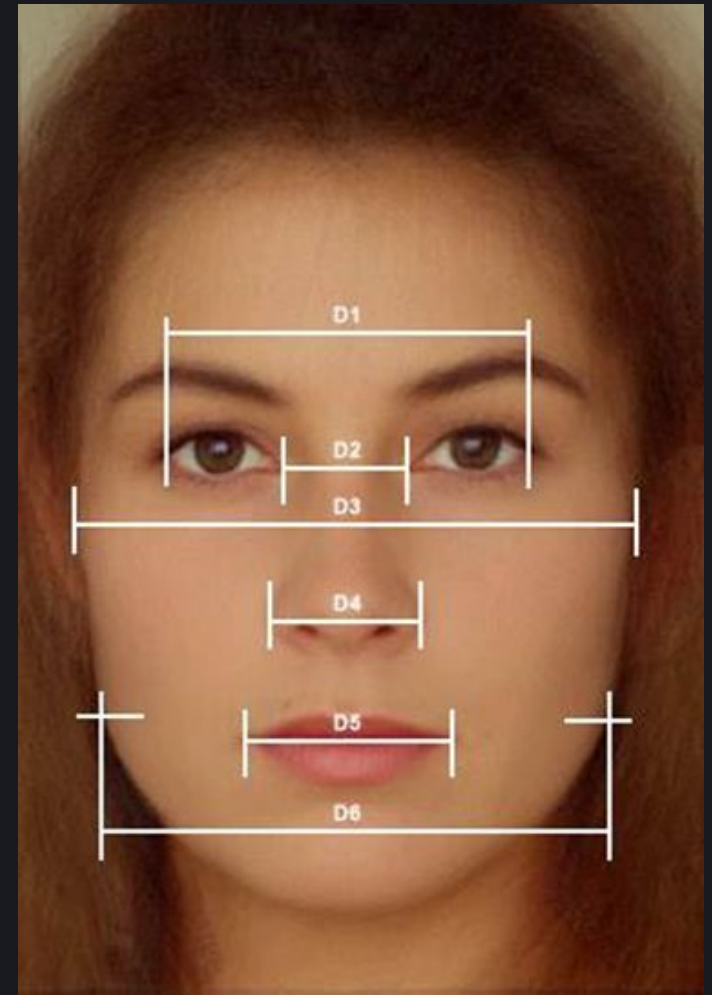
Men consistently indicate a greater willingness to engage in sexual intercourse than women



Sexual studies in Evolution

2. Symmetry as an Indicator of Parasite/Pathogen Resistance

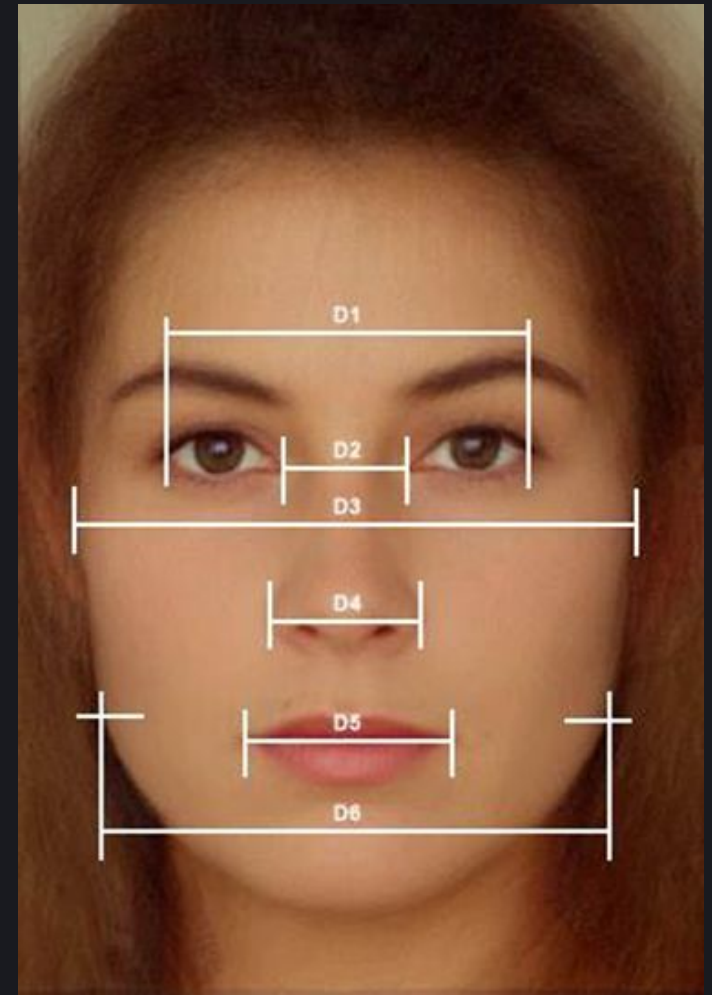
- Faces constitute a life-long “medical record”
- Parasites and pathogens drain the bodies resources and disturb normal processes of growth and development
- These disturbances leave small but permanent traces



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.

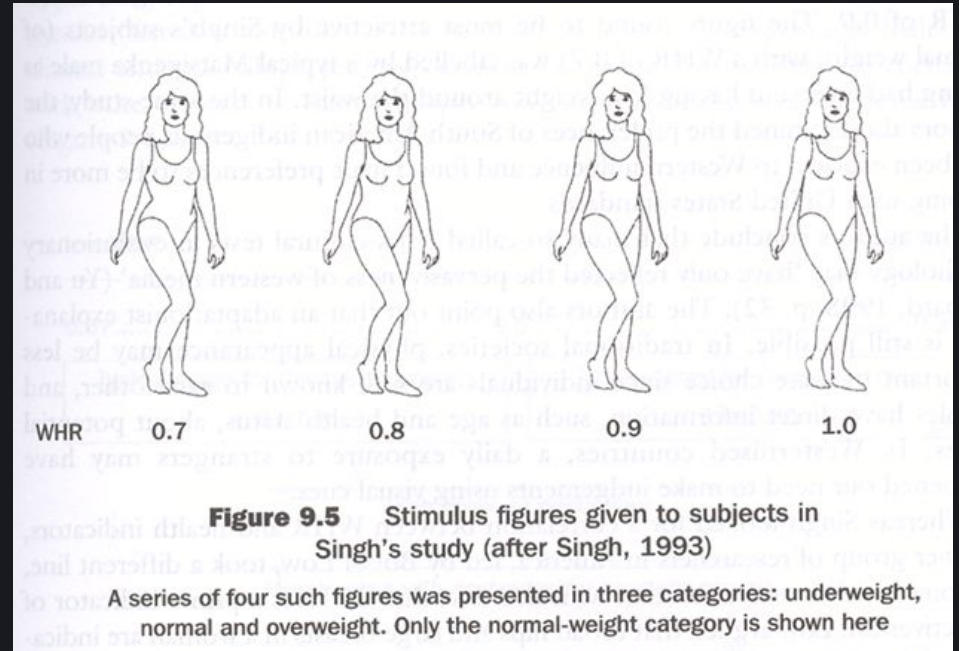
T-shirt studies

- 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

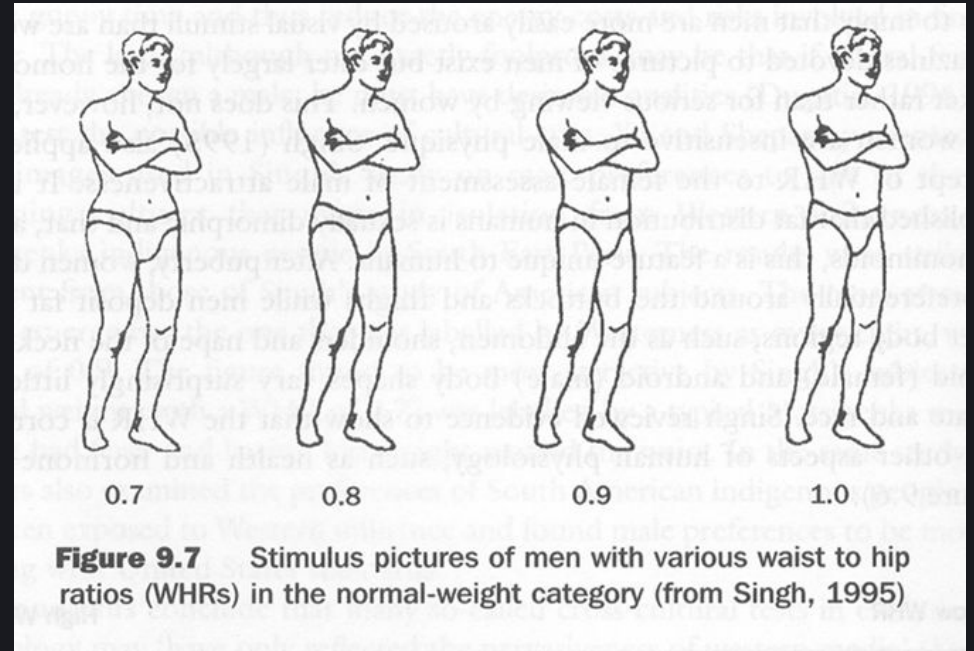
- Men prefer partners with a low waist-to-hip ratio
- This effect is not dependent on weight



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

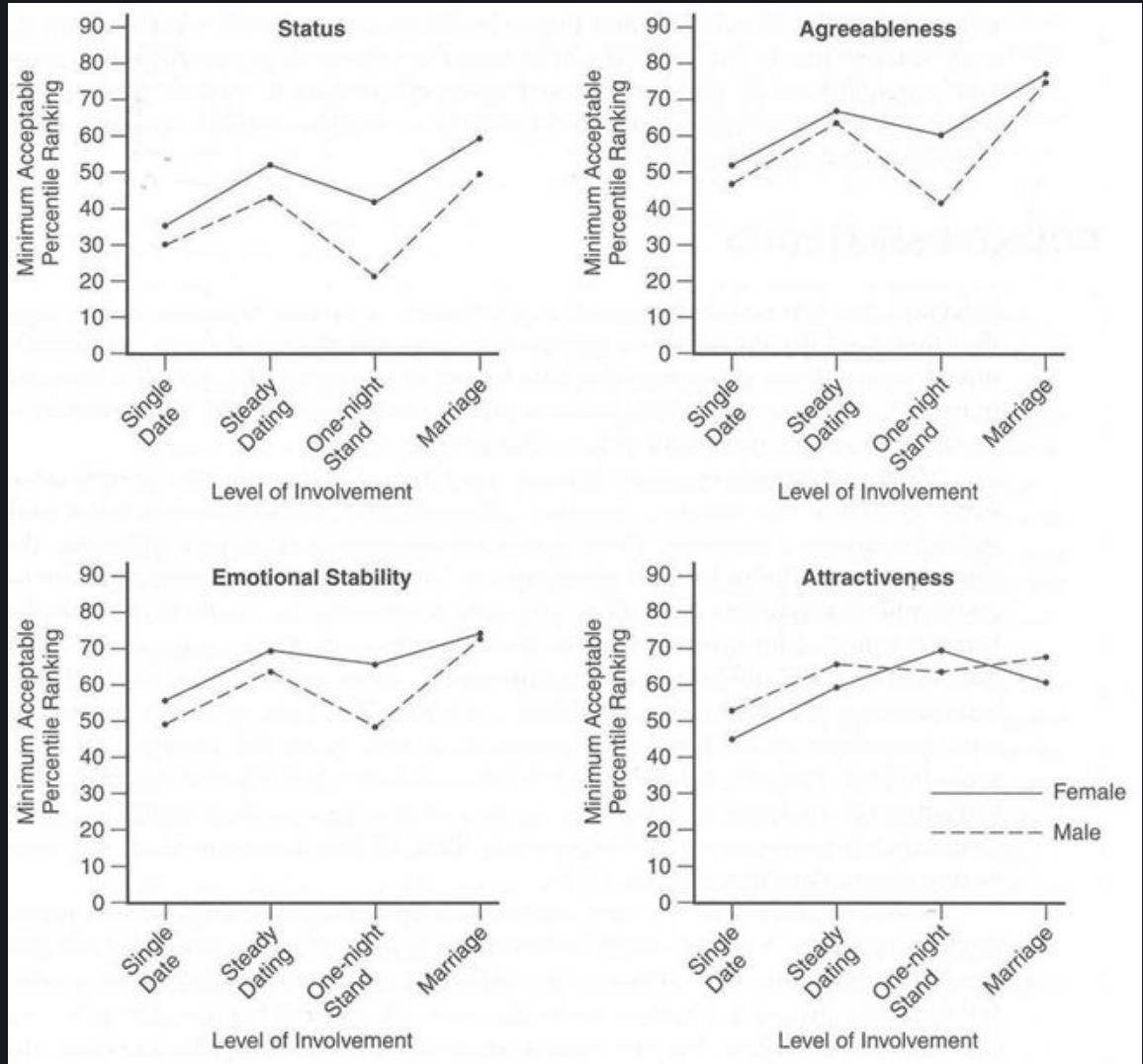
Asked about these minimum percentile rankings for several levels of involvement

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

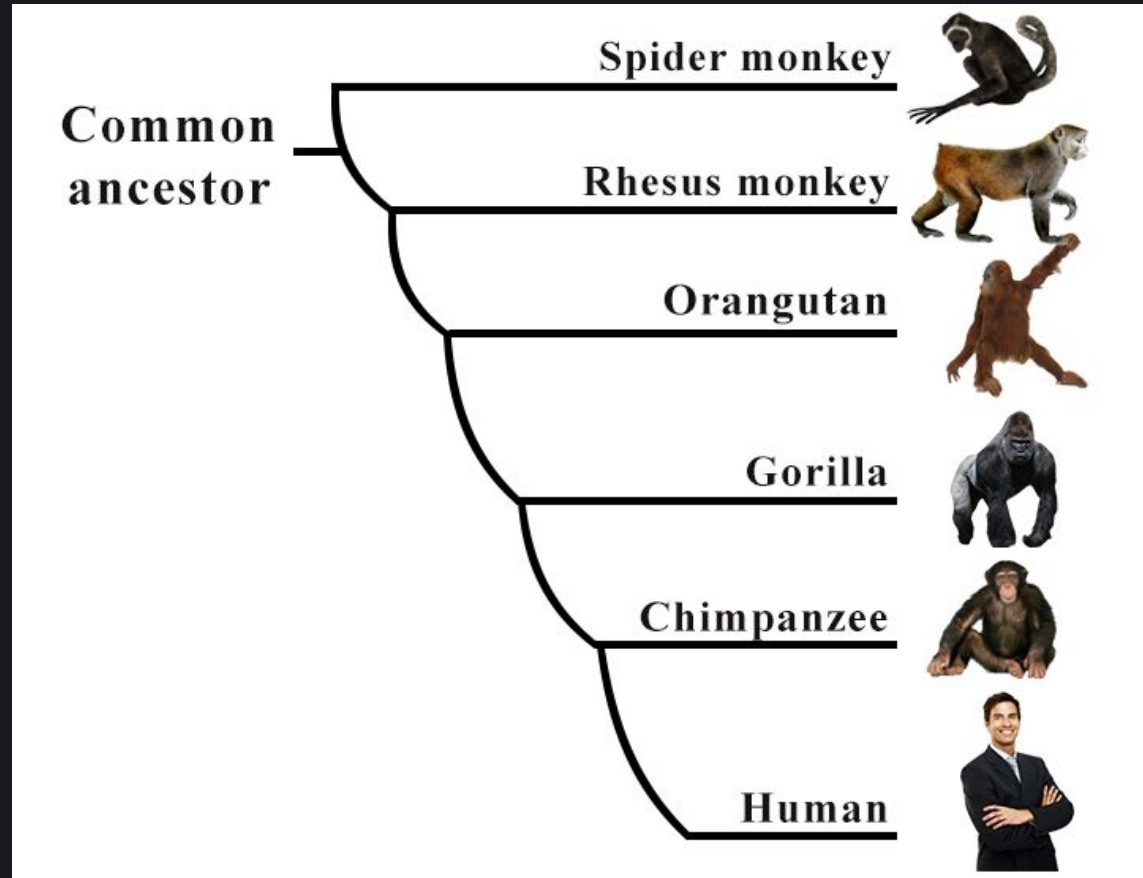


How Evolutionary Thinkers Think



1. Similarity with animals with common parentage

Compare behaviour

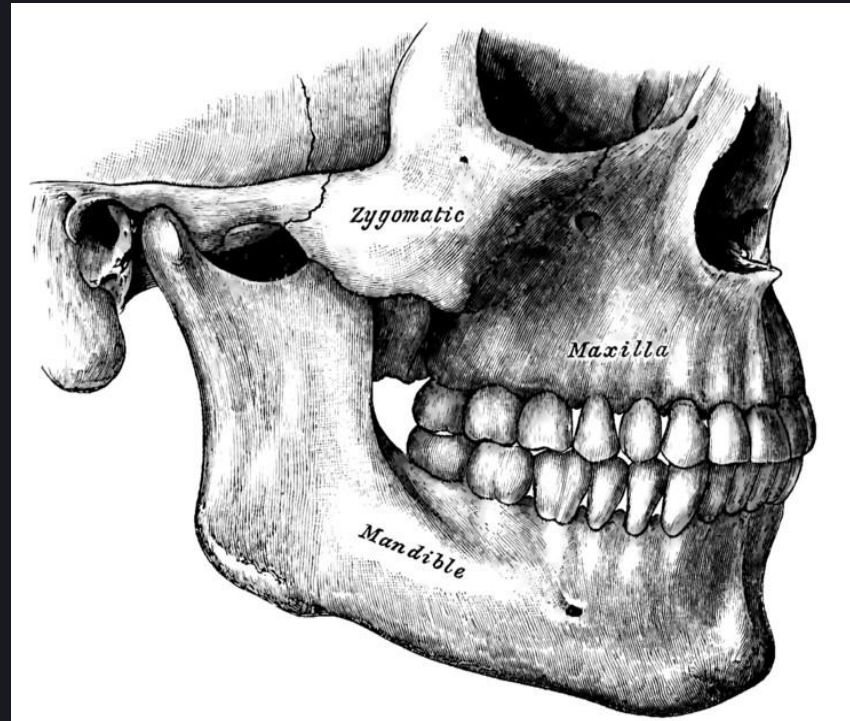
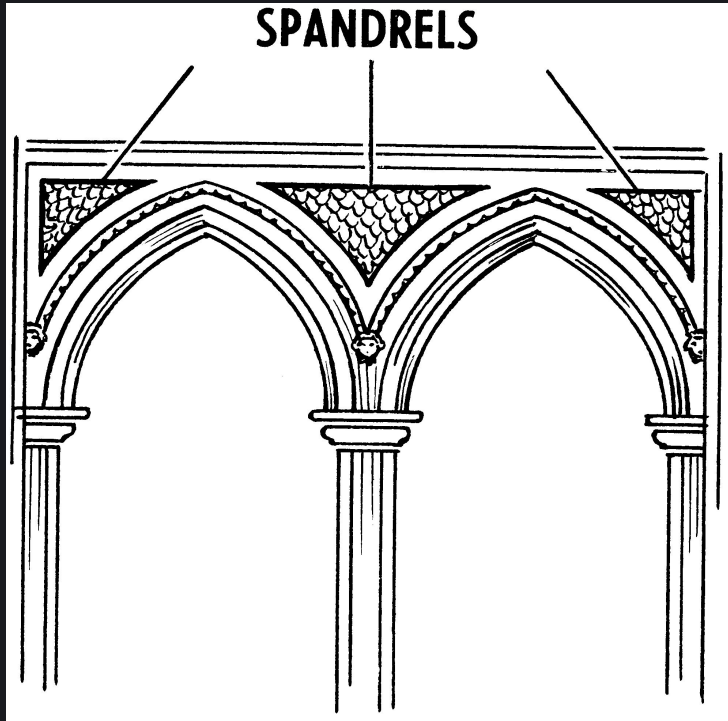


2. Compare other data

- 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)

Session 2 Content

1. Experiments

2. Social Psychology

- Conformity Studies
- Freud
- Classical Conditioning
- Behaviorism
- Fritz Heider
- Schachter and Singer
- Bem

3. Cognitive Psychology

- Dissonance
Leon Festinger
- Errors in thinking
Kahnemann

4. Group Psychology

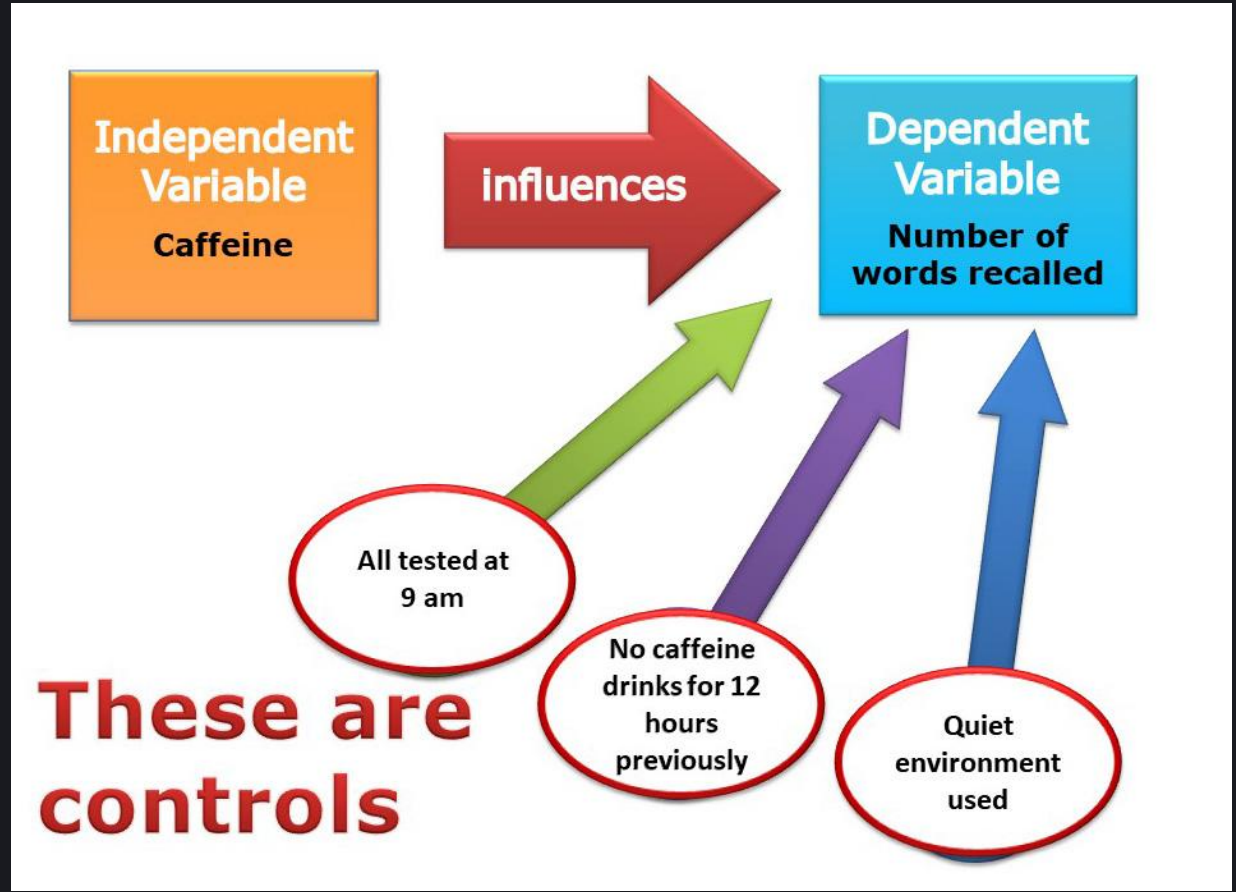
Additional Discussions

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



Setting the experiment

1. Independent Variable
2. Dependent Variable
3. Exogenous Variable
4. Control Group
5. Experimental Group
6. External Validity
7. Internal Validity



Setting the experiment

1. Hypothesis

1. Sleep deprived college students would perform significantly lower on a test.
2. To test this hypothesis, a randomized group of college students are assigned to a full night of sleep.
3. Another group of college students is assigned to a deprived sleep (less than 5 hours of sleep)
4. After they wake up, they are given a test and their scores are measured.



Setting the experiment

2. Variables

1. **Independent Variable**
Sleep Deprivation
2. **Dependent Variable**
Test Scores
3. **Exogenous Variable** (may have an effect on IV and DV relationship)
Age, Gender, Background, etc.



Setting the experiment

3. Experimental & control group

1. **Experimental Group**
Sleep Deprived Students (presence of independent variable)
2. **Control Group**
Well slept students (independent variable absent)



2. Social Psychology

Conformity studies



Conformity studies

Solomon

Asch



Khan Academy

Asch line experiments - Conformity

Solomon Asch

Asch conformity studies

The diagram illustrates the experimental setup for an Asch line experiment. On the left, a stick figure labeled 'experimenter' stands next to a board. The board has a 'target line' and several 'comparison lines' of varying lengths. An arrow points from the experimenter to the board. On the right, a group of stick figures labeled 'Other Participants' is shown. One participant is highlighted with a red circle and a question mark, indicating they are the subject of the study. The text 'still you' is written near the participant. The background is dark with white and red hand-drawn elements.

target line

comparison lines

experimenter

Other Participants

still you

The Khan Academy logo, which consists of a green hexagon with a white stylized human figure inside.

Khan Academy

Conformity studies

Stanley Milgram



Khan Academy



1. Please continue (if you can)
2. The experiment requires that you continue
3. It is absolutely essential that you continue



Khan Academy

Conformity studies

Philip Zimbardo



Khan Academy



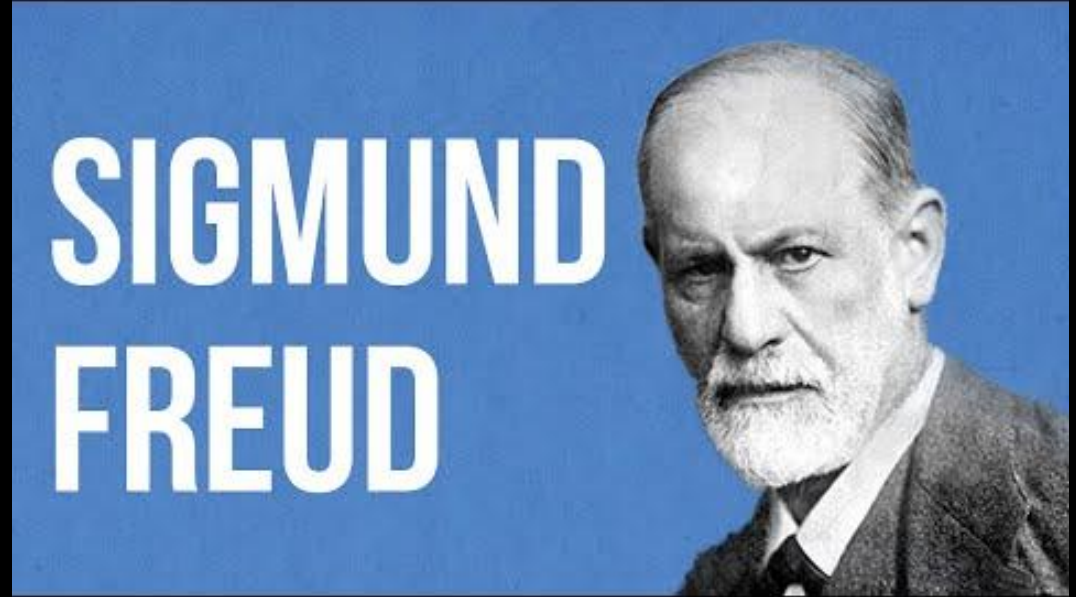
Conformity Studies

Philosophical take

1. **Zimbardo**
Sense of I is malleable.
I am prone to roles
2. **Milgram**
Sense of my judgement is
malleable. I am prone to
authority.
3. **Asch**
Sense of my perception is wrong.
Interpretation is bigger than raw
perception.

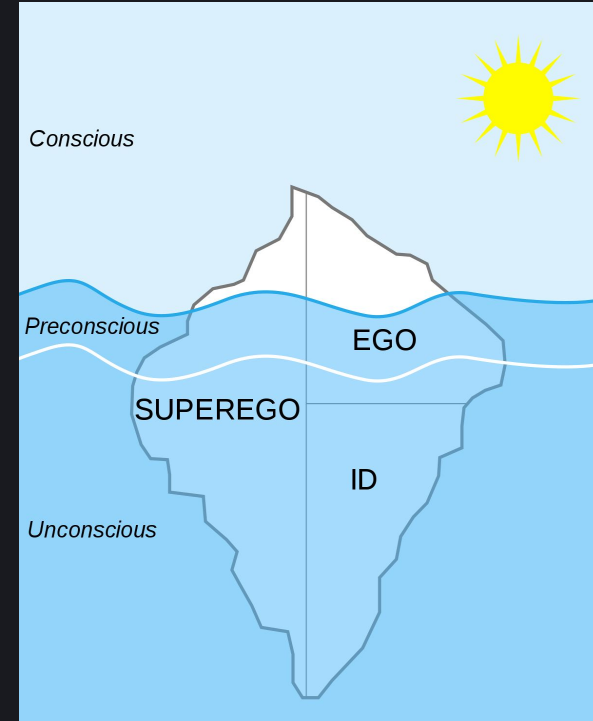
Social psychology

3. Freud



Freud

Id, ego and superego



Freud (Advanced)

Why is he different

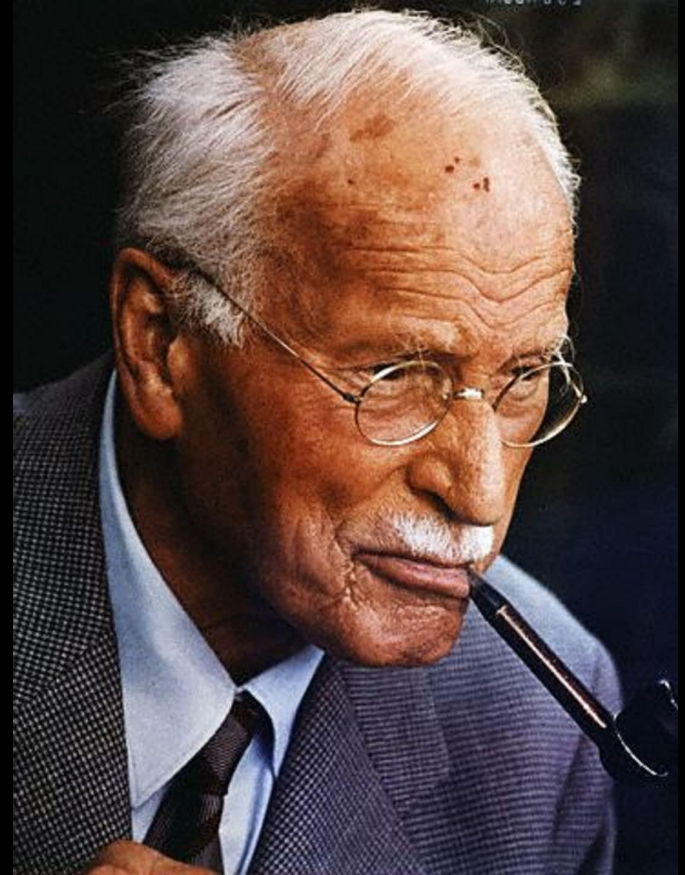
1. Psychodynamics
2. Not scientific, more theoretical, philosophical and literary
3. Very controversial since
4. Had unignorable insight into the working of the mind

Social psychology

Carl Jung

(1875 - 1961)

Archetypes as unconscious
Disagreement about fixation on sex
Collective Unconscious - Dreams and
Symbolism



Social psychology

4. Classical Conditioning

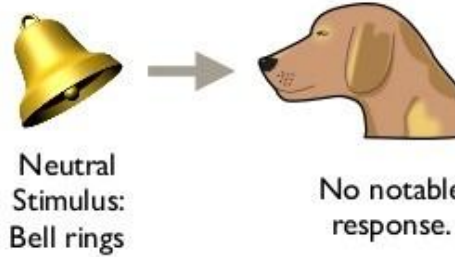
Pavlov and Classical Conditioning



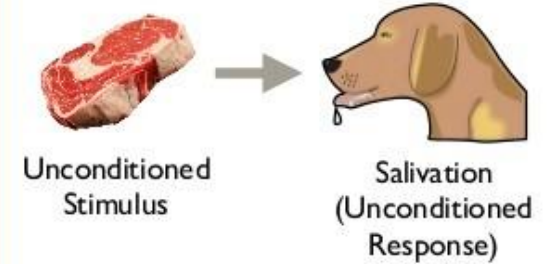
Social psychology

Philosophical discussion

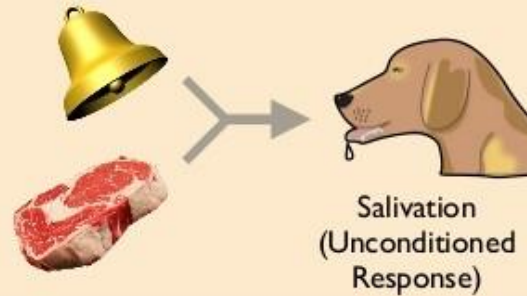
1. Before Conditioning



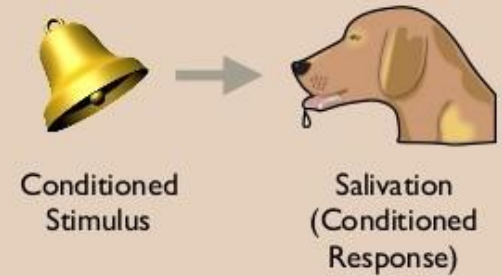
2. Before Conditioning



3. During Conditioning



4. After Conditioning



Social psychology

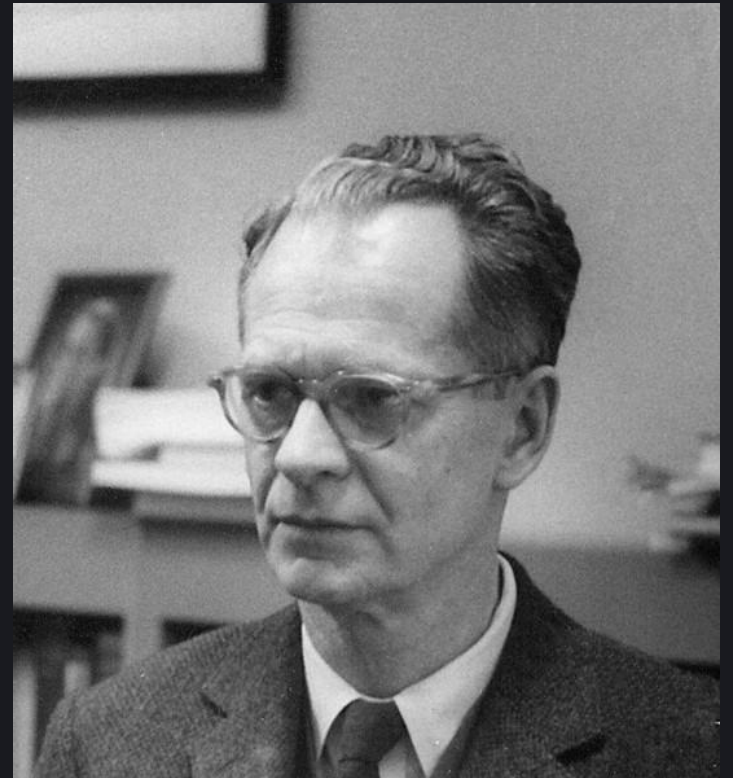
5. Behaviourism



Behaviourism

Operant Conditioning

B. F. SKINNER

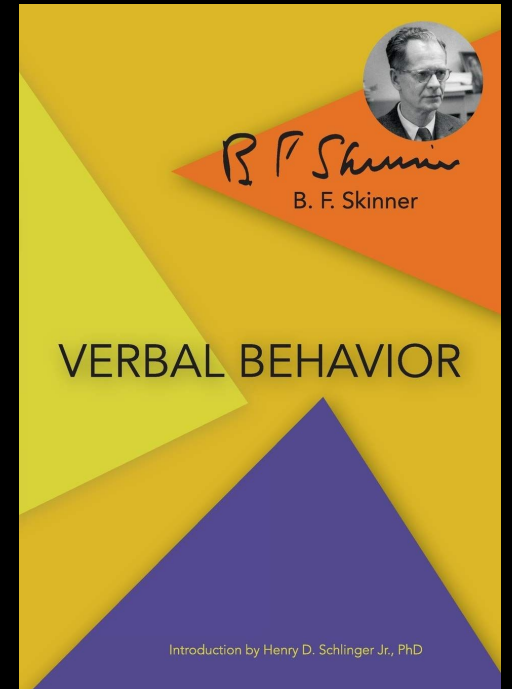


Behaviorism

Philosophical take

Chomsky and
Behaviourism

Language



Chomsky and
Behaviourism

Philosophical Take

Meaning

Behavior and The
Limitations of Psychology



Social psychology

6. Fritz Heider



Fritz Heider

Lay Scientific Theory

Formula

ACTOR'S DISPOSITION + IMMEDIATE SITUATION
= BEHAVIOR

Fritz Heider

1. Lay Scientific Theory

Experiment

Students whose first initial in their last name is
A-K

The student was free to choose any topic and position to make a
speech about

Source: Study from PG's classroom with
E Tory Higgins

Fritz Heider

1. Lay Scientific Theory

Experiment

Students whose first initial in their last name is
L-Z

The instructor of the course treated the speech as a debate and assigned the topic and position to the student

Source: Study from PG's classroom with
E Tory Higgins

Fritz Heider experiment speech

The United States of America was formed out of the ashes of civil war; a violent and spirited revolution of those who wanted the freedom to choose their destiny against an oppressive government that refused to listen. The struggle of the unrepresented and repressed goes on today, in Palestine. The Palestinian people fight a revolutionary war against an oppressive Israeli government in which they have no voice. They, much like the patriots in the American Revolution, have no political recourse, no means to negotiate with the powerful.

...

...

The Palestinian people face the same overwhelming odds our forefathers did; a large professional military force and unsympathetic Israeli government. They struggle for a homeland they were forced out of, a homeland they inhabited for thousands of years. In this America, born from the ashes of revolutionary war, born of hope in the face of superior military might, we should embrace the Palestinian people as they struggle for the same freedoms our forefathers won us two centuries ago.



Fritz Heider

Lay Scientific Theory

Experiment

Based on the evidence you have, how Pro-Palestinian do you think this student really is?

Rate the extent to which the student is truly Pro-Palestinian on a scale from 0 [not at all] to 10 [extremely]

Score	A-K (No. of students)	L-Z (No. of students)
0-1		
2		
3		
4		
5		
6		
7		
8-10		

Score	A-K (No. of students)	L-Z (No. of students)
0-1	0	2
2	0	1
3	0	3
4	0	2
5	4	10
6	4	9
7	9	6
8-10	29	11

Fritz Heider

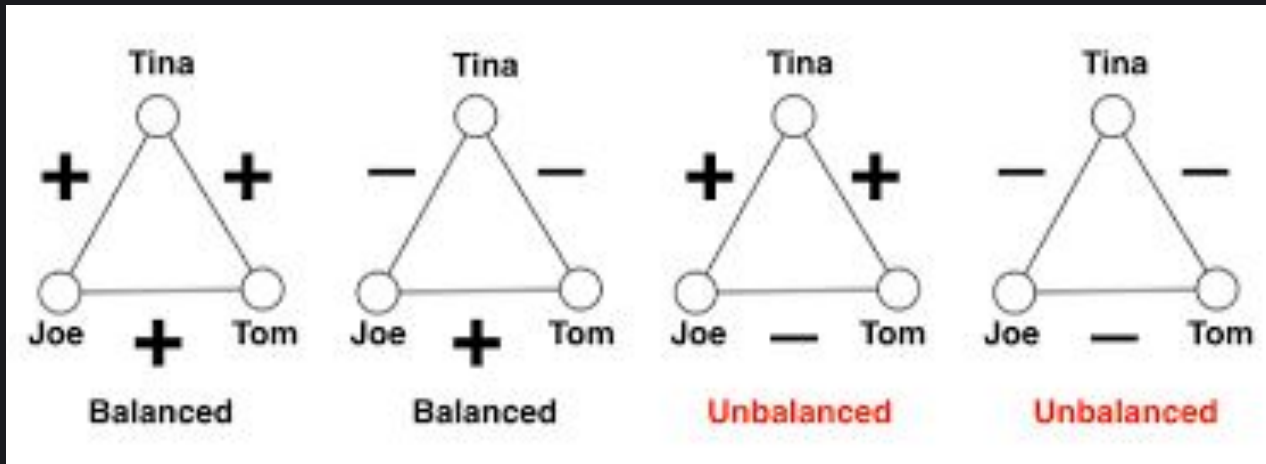
1. Lay Scientific Theory

Discuss Palestine Experiment



Fritz Heider

2. Balance Theory



Social psychology

7. Schachter and Singer



Schachter and Singer

Physiological Arousal +
Psychological explanation



Label



Emotion



7. Schachter and Singer

The misattribution of arousal study tested Schachter and Singer's two-factor theory of emotion. Psychologists Donald G. Dutton and Arthur P. Aron wanted to use a natural setting that would induce physiological arousal.

In this experiment, they had male participants walk across two different styles of bridges. One bridge was a very scary (arousing) suspension bridge, which was very narrow and suspended above a deep ravine. The second bridge was much safer and more stable than the first.

7. Schachter and Singer

At the end of each bridge an attractive female experimenter met the [male] participants. She gave the participants a questionnaire which included an ambiguous picture to describe and her number to call if they had any further questions.

The idea of this study was to find which group of males were more likely to call the female experimenter and to measure the sexual content of the stories the men wrote after crossing one of the bridges.

Social psychology

8. Bem



8. Bem

Self Perception Theory

Lepper, Greene & Nisbett (1973) did a field experiment to test children's attitudes towards coloring



Self perception theory

Experiment

1. Children (who liked coloring prior to the experiment) were asked to engage in coloring, according to three conditions:
2. They knew they would be rewarded after coloring
3. They were rewarded by surprise, and
4. No reward was granted
5. After 7-14 days, the children are given the choice to engage in any activity they want.

Self perception theory

Experiment Conclusion

According to standard reinforcement theories, the two first conditions should have yielded more coloring time, because they were associated with reward. However, this was not the case. Instead, the children infer that they color not because they like it, but because of the situation: to receive an award.

Bem

Philosophical take

9. Cognitive

Alan Turing



Cognitive Psychology

How we think

1. Perception
2. Memory: Working and Long Term
3. Language
4. Meta Cognition

Cognitive psychology

Leon Festinger

1. 1955 experiment
2. The subject performed a series of repetitive and boring menial tasks and then was asked to lie to the “next subject” (actually an experimental accomplice) and say that the tasks were interesting and enjoyable.
3. Some subjects were paid \$1 for lying, while others were paid \$20.
4. Subjects who were paid \$1 for lying later evaluated the tasks as more enjoyable than those who were paid \$20.

Leon Festinger

Philosophical Takes

1. Consistency between past and present and future
2. Unconscious need for consistency, difficult to tolerate contradiction

Leon Festinger and Bem meet



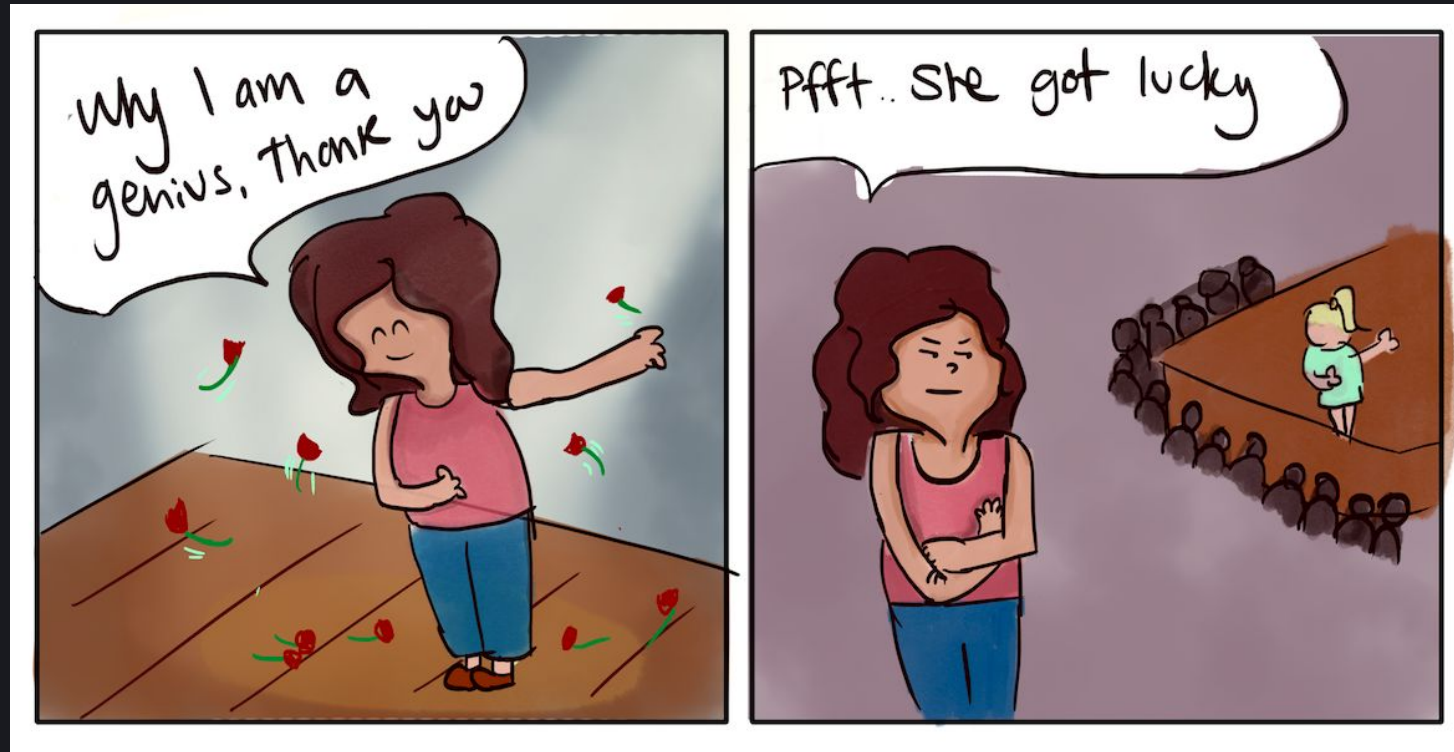
Cognitive psychology

Errors in thinking



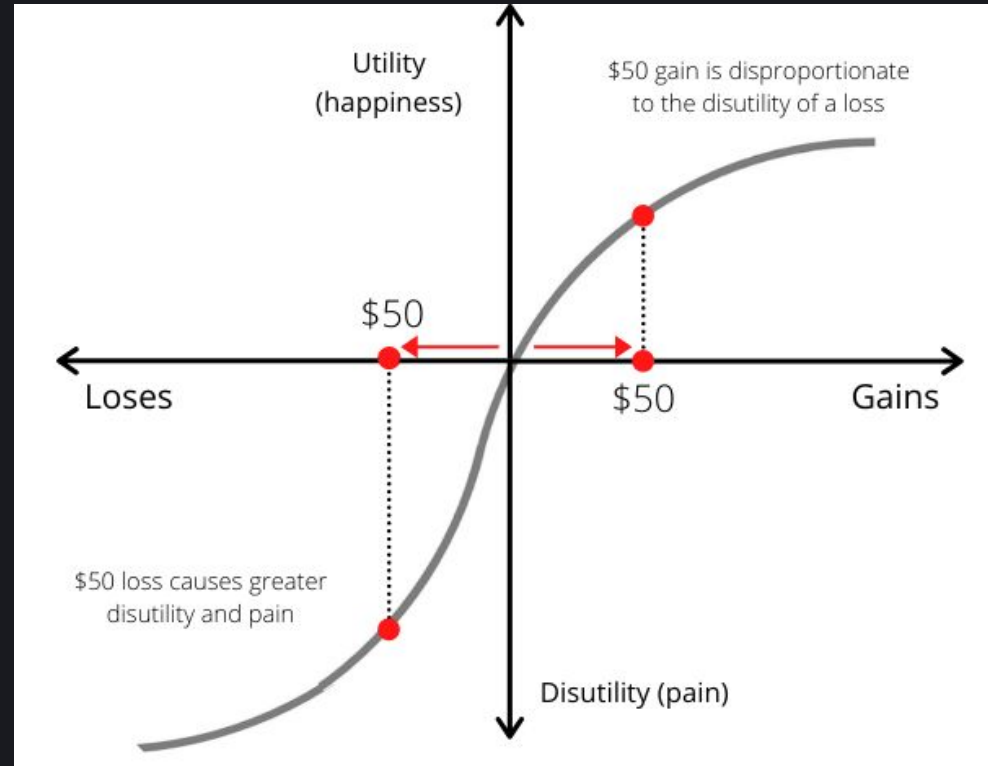
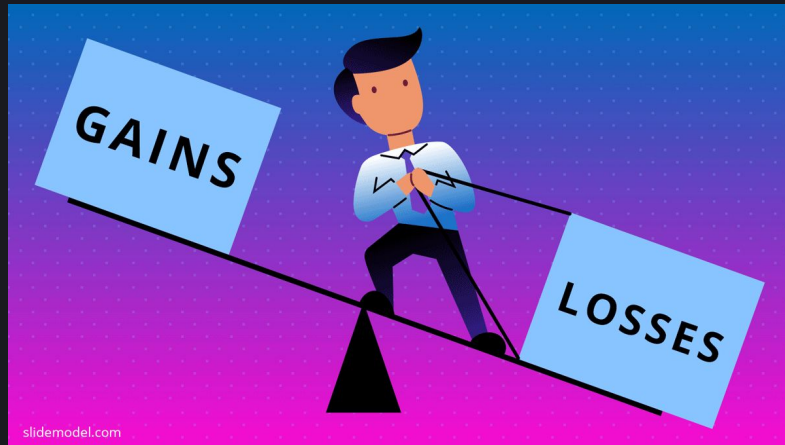
Errors in thinking

1. Fundamental Attribution Error



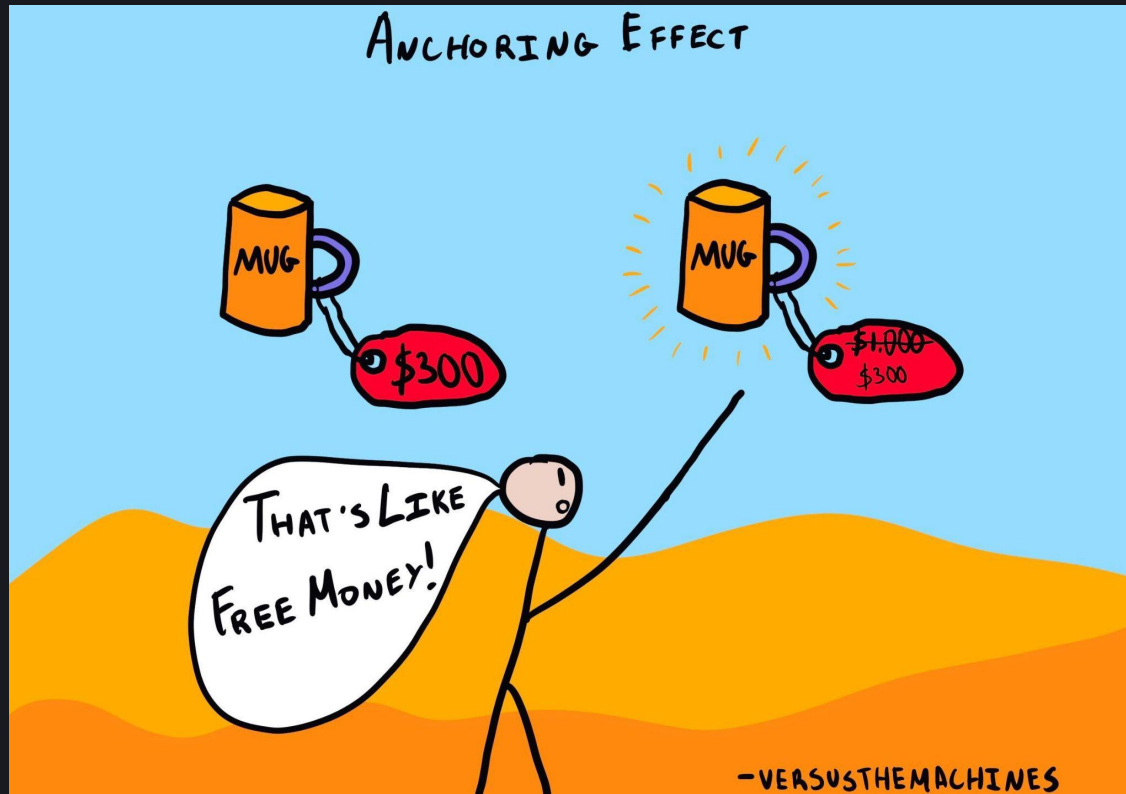
Errors in thinking

2. Prospect Theory



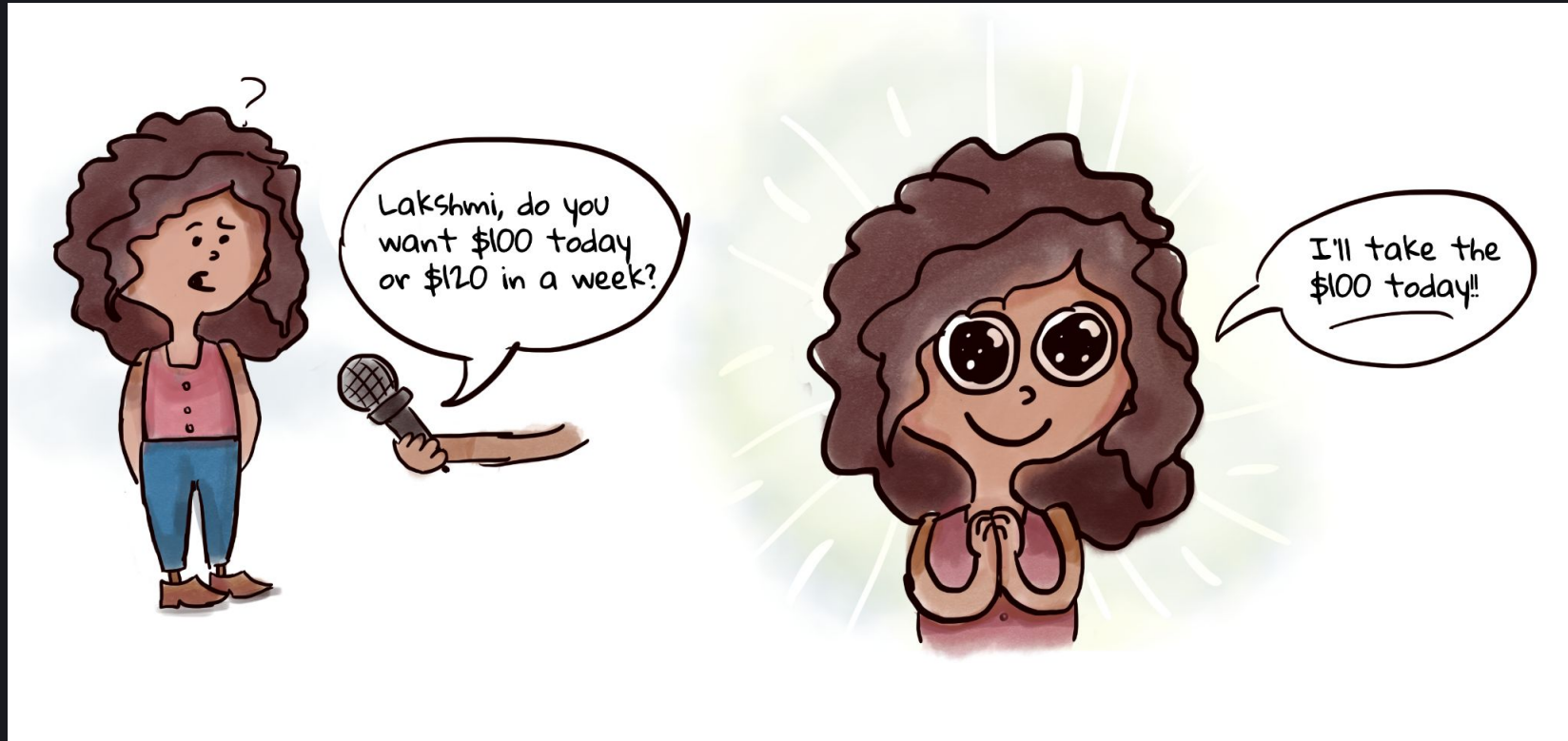
Errors in thinking

3. Anchoring and adjustments



Errors in thinking

4. Discounting



4.

Group
psychology

Group Psychology

1. Group Think

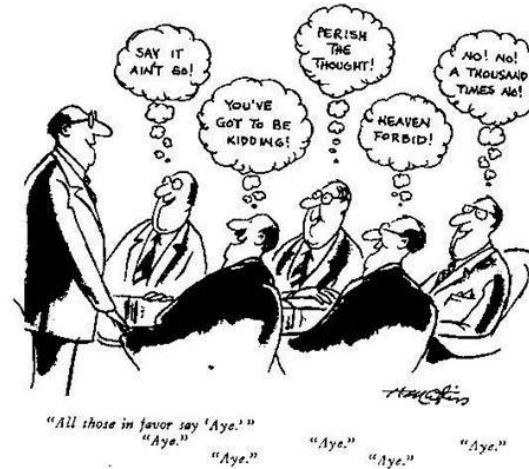


Groupthink is a phenomenon where people tend to confirm with group decisions to avoid feeling outcast, leading to errors in decision making.

2. Group polarization

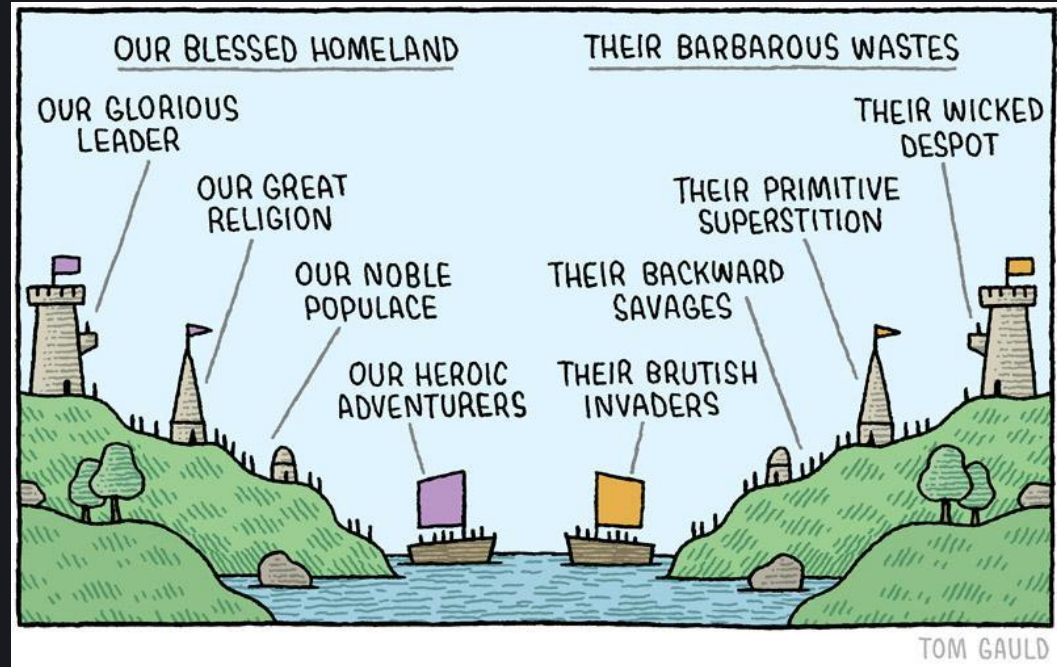
Group Polarization

- Groups tend to make more extreme decisions than the individual.



Group Psychology

3. In group, out group



Session 3 Content

1. Personality Psychology

- Freud's Psychosexual Development
- Trait Theory
- Big 5
- Myers-Briggs

2. Empathy

3. Spiritual Psychology

- Who am I?
 - Self
 - Identity
-

1.

Personality Psychology



Theories we will consider

1. Freud's Psychosexual Theory
2. Trait theory
 - Big 5
 - Myers-Briggs
 - Problems with Personality test

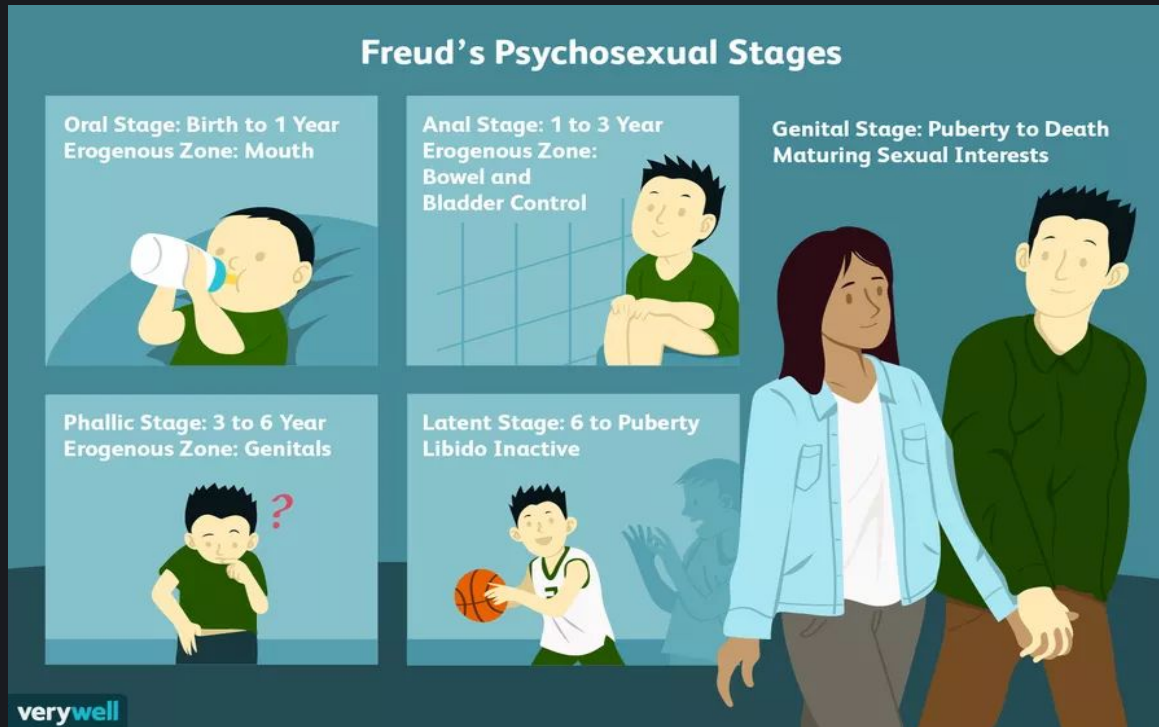
Personality Psychology

1. Freud, Sex And Personality

According to Freud, children go through a series of psychosexual stages that lead to the development of the adult personality.



1. Freud's Psychosexual stages of development



Freud's Psychosexual
stages of development

1. Oral Stage

(Birth to 1 Year)

Erogenous zone: Mouth

Oral fixation can result in problems with
Drinking, eating, smoking or nail-biting



Freud's Psychosexual
stages of development

2. Anal Stage

(1 to 3 Years)

Erogenous zone: Bowel and bladder control

- Anal-expulsive personality: messy, wasteful, or destructive personality.
- Anal-retentive personality: stringent, orderly, rigid, and obsessive.



Freud's Psychosexual stages of development

3. Phallic Stage

(3 to 6 Years)

Erogenous zone: Genitals

- Oedipus Complex and Electra Complex
- Fixation can lead to adult personalities that are overly vain, exhibitionist, and sexually aggressive.



Freud's Psychosexual
stages of development

4. Latent Period (6 Years to Puberty)

Erogenous zone: Sexual feelings are inactive

Fixation at this stage can result in immaturity and an inability to form fulfilling relationships as an adult.



Freud's Psychosexual
stages of development

5. Genital Stage

(Puberty to Death)

Erogenous zone
Maturing Sexual interests



Personality Psychology

2. Trait Theory

A **trait** can be thought of as a relatively stable characteristic that causes individuals to behave in certain ways.

The trait theory suggests that individual personalities are composed of these broad dispositions.

In 1936, psychologist Gordon Allport found that one English-language dictionary alone contained more than 4,000 words describing different personality traits.



Personality Psychology

2. Trait Theory

Further Discussion:

1. Self reporting
2. Factor analysis: break complexity into few simple factors.
3. A correlation implies overlap
4. Biological basis



Trait Theory

The Big 5 (Ocean)



Openness



Conscientiousness



Extraversion



Agreeableness

The
Big Five
Personality
Traits



Neuroticism

Trait Theory

The Big 5 (Ocean)



The Big 5 (Ocean)

Openness

- This trait features characteristics such as imagination and insight.
- People who are high in this trait tend to be more *adventurous*, *curious* and *creative*.
- People low in this trait are often much more traditional and may struggle with abstract thinking.



The Big 5 (Ocean)

Conscientiousness

- Standard features of this dimension include high levels of thoughtfulness, good impulse control, and goal-directed behaviors.
- Highly conscientious people tend to be organized and mindful of details. They plan ahead, think about how their behavior affects others, and are mindful of deadlines.



The Big 5 (Ocean)

Extraversion

- Extraversion is characterized by excitability, sociability, talkativeness, assertiveness, and high amounts of emotional expressiveness.
- People who are high in extraversion are outgoing and tend to gain energy in social situations.
- People who are low in extraversion (or introverted) tend to be more reserved and have less energy to expend in social settings.



The Big 5 (OCEAN)

Agreeableness

- This personality dimension includes attributes such as trust, altruism, kindness, affection, and other prosocial behaviors.
- People who are high in agreeableness tend to be more cooperative.
- People low in this trait tend to be more competitive and sometimes even manipulative.



The Big 5 (OCEAN)

Neuroticism

- Neuroticism is a trait characterized by sadness, moodiness, and emotional instability.
- Individuals who are high in this trait tend to experience mood swings, anxiety, irritability, and sadness.
- Those low in this trait tend to be more stable and emotionally resilient.



The Big 5 (Ocean)

Let's take a personality test!

<https://www.truity.com/test/big-five-personality-test>



Trait Theory

CBT and the Big 5

(Casual Advice)



Trait Theory

Myers-Briggs Personality Questionnaire

Developed by Isabel Myers and her mother Katherine Briggs, based on their work with Carl Jung's theory of personality types.

Based on the answers to the questions on the inventory, people are identified as having one of 16 personality types.



Trait Theory

Myers-Briggs Personality Questionnaire

WHAT'S YOUR TYPE?

MEDIATOR



LOGISTICIAN



ENTREPRENEUR



DEBATER



Trait Theory
**Criticism of the
Myers-Briggs Test**



Dr. Jordan Peterson



Trait Theory

Problems with Personality Test

1. Collection Bias
2. Cardinal Bias



Problems with
Personality Tests

Context Independence



Problems with
Personality Tests

**Self Fulfilling,
like Astrology**



2.

Empathy



2. Empathy

Philosophical Take



3.

Spiritual Psychology



Spiritual Psychology

Who am I?

- Identity
- Self



Spiritual Psychology

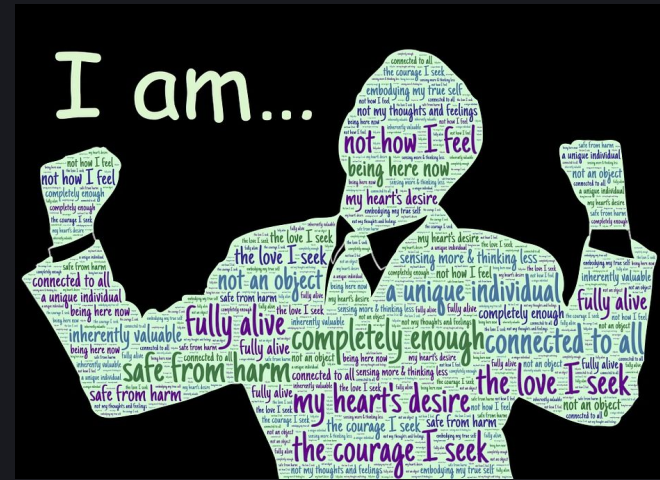
Who am I?



Spiritual psychology

Identity

Personal Vs Social



Philosophical Take

2. Context

Dependent Identity



Philosophical Take

3. Being married to an identity



Philosophical Take

4. Forced marriage to an identity



Spiritual
Psychology

Self



Ship of Theseus



Spiritual
Psychology

Self



The Reluctant
Fundamentalist (2012)



This is a hypothetical business.

Self



Ship of Theseus Paradox

- If **one plank** of the Ship of Theseus has been replaced, **is it still the same ship?**
- If **all of the planks** have been replaced, **is it still the same ship?**



Self

As ego



Self - Spiritual Psychology

1. **Free from identity**



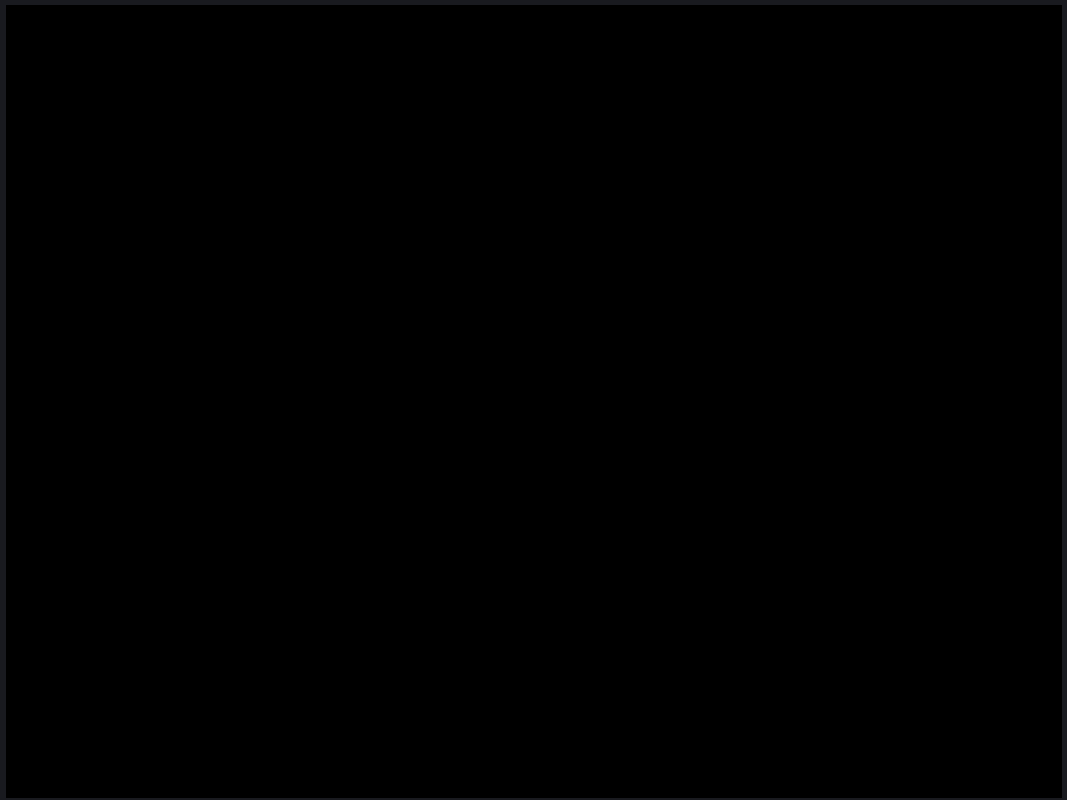
Self - Spiritual Psychology

2. **Awareness of what matters**



Self - Spiritual Psychology

3. **Means and
ends change**



Self - Spiritual Psychology

4. **Harmony
between ID, Ego
and Superego
(No conflict)**



Self - Spiritual Psychology

5. **Desires and
attachments
with identity
markers**



Self - Spiritual Psychology

6. **Distance**
between input
and output



Self - Spiritual Psychology

7. **Removing yourself
from the center of
the world**



End.