

Psychedelic Science: Visual Cheat Sheet

Fall 2025 | Lecture 01

Exam Essentials

Date: Tue, Dec 16, 2025 [S2] **Format:** Multiple Choice (48 Qs) [S9] **Bring:** ID & 2 Black Pens
Time: 16:15–18:00 [S3] **Duration:** 1h 15min [S5] **Note:** No Registration [S16]

1. Psychedelic Psychology I: Introduction & Phenomenology

1.1 Foundations: Psychology & Consciousness

Definitions

- **Psychology (Ψ):** Science of behavior and mental processes; applied to human welfare. [S13]
- **Psychedelic Science:** Systematic, multidisciplinary study of mind-revealing substances and experiences. [S10]
- **William James:** Rational consciousness is just one type; NSCs are equally real/important. [S15]

States of Consciousness:

[S14]

- **OSC:** Ordinary State of Consciousness (Baseline).
- **NSC:** Nonordinary (Altered) States of Consciousness.

→ NSCs differ from OSC in **Cognition** (Thought), **Affect** (Emotion), and **Conation** (Will).

Classification of NSCs (Induction Types):

[S16]

Type	Examples
Spontaneous	Dreaming, Hypnagogia (sleep onset), Near-death Exp. (NDE).
Psychological	Meditation, Sensory Deprivation, Hypnosis, Rhythm trance.
Pharmacological	Psychedelics, Dissociatives, Connectogens.

1.2 Pharmacology Basics & Safety

4 Mechanisms of Action

[S4, 18]

1. **Agonist** Binds to receptor & **mimics** neurotransmitter.
2. **Antagonist** Binds to receptor & **blocks** binding.
3. **Levels** Increases or decreases neurotransmitter levels.
4. **Removal** Slows/accelerates synaptic removal (reuptake).

Classic Psychedelics Mechanism:

[S18]

Act as **Serotonin ($5-HT_{2A}$) Receptor Agonists**.

Substance Classification:

[S17]

Category	Substances	Characteristic
Classic	LSD, Psilocybin, Mescaline	$5-HT_{2A}$ Agonism. Visuals.
Connectogens	MDMA (Ecstasy)	Empathogens/Entactogens.
Dissociatives	Ketamine	Detachment (body/env).

- **Clinical Context:** Considered safe. Low risk of dependence. No neurotoxicity (classic psychs).
- **Recreational Context:** Risks include unsafe behavior or persistent mental health problems.

1.3 Phenomenology: The Experience

Phenomenology (Raw Experience) \longleftrightarrow **Interpretation** (Assigning Meaning)

[S20]

The Psychedelic Spectrum

[S21]

A. Autobiographical **Focus: Self & Life History**

[S22]

Self intact. Personal insights, processing trauma.

B. Immanent

Focus: Within the Created World

[S25]

Unity with nature/cosmos.

\hookrightarrow *Integrative*: Self connected but distinct.

\hookrightarrow *Disintegrative*: Ego breakdown (e.g., becoming a tree).

C. Transcendent

Focus: Beyond the Created World

[S28]

Timeless, spaceless, "full void."

\hookrightarrow *Integrative*: Self rests in the void.

\hookrightarrow *Disintegrative*: Ego dissolves into transcendent.

2. Psychometrics

Definitions

Psychometrics: The branch of psychology concerned with the quantification and measurement of mental activity and behavior into numerical values. [S5]

Psychological Scales: Standardized questionnaires that measure psychological constructs (e.g., states, traits, abilities). [S6]

- *Note:* The terms "Scales" and "Questionnaires" are often used interchangeably.

Scale Basics:

[S6-7]

- **Likert Scale:** Discrete numbers (e.g., 0–5).
- **Visual Analog Scale (VAS):** Continuous line (e.g., 0–100 mm).
- **Validation:** The essential scientific "quality check".
 - *Internal Validity:* Do items correlate strongly/form consistent factors?
 - *External Validity:* Does the scale relate as expected to other validated scales?

Types of Validated & Standardized Scales:

[S8]

Validated scales are essential for reliable, comparable results.

Type	Examples & Specifics
Comprehensive	<p><i>Measure the whole experience (Positive, Distressing, Perceptual).</i></p> <ul style="list-style-type: none"> • PES (Psychedelic Experience Scale / incl. MEQ). ↔ Unique Feature: Has Ineffability subscale. • 5D-ASC (5-Dimensional Altered States Scale). ↔ Unique Feature: Has Insightfulness subscale. • HRS (Hallucinogen Rating Scale). ↔ Unique Feature: Has Somaesthesia (Bodily effects) & Intensity.
Specialized	<p><i>Target specific aspects of the experience.</i></p> <ul style="list-style-type: none"> • EDI (Ego Dissolution Inventory). • CEQ (Challenging Experience Questionnaire). • EBI (Emotional Breakthrough Inventory).

Clinical Findings & Pharmacology Links

1. Mechanism Check (The Blocking Study):

[S9]

Evidence: **Ketanserin** (5 – HT_{2A} antagonist) blocks Mescaline effects.

→ *Finding:* Ketanserin reduces a **high dose** (800 mg) experience to the level of a **low dose** (100 mg). →

Conclusion: The experience is dependent on 5 – HT_{2A} receptor activation.

2. Acute Monitoring vs. Validated Scales:

[S12]

Validated Scales: (like 5D-ASC) are reliable but too long for acute phases.

Trial-Specific VAS: Simple, single items used for real-time monitoring.

→ **Warning:** These are **non-validated** and not standardized; results must be interpreted with care.

3. Key Correlations:

[S13-14]

- **Mediation:** High "Mystical Experience" (MEQ) scores predict therapeutic success (e.g., sustained symptom reduction in cancer-related anxiety).
- **Brain Connectivity:** High MEQ scores ↔ Increased global functional connectivity (fMRI).

Psychometric Gaps (What scales miss)

[S4]–[S6], [S9]

Current validated scales (like MEQ) capture many features but **underrepresent** key phenomenological distinctions:

1. The Mystical Gap (Phenomenology):

Scales miss the distinction between **Immanent** (World/Nature) vs. **Transcendent** (Void) realms, and **Integrative** vs. **Disintegrative** unity.

2. The Autobiographical Gap:

Scales measure general emotions but miss **explicit interpersonal insights** and the vivid **re-experiencing/working through** of past events.

3. Pharmacology I: Molecular Mechanisms

3.1 Fundamentals of Pharmacology

Core Definitions

- **Pharmacology:** The study of drug composition, kinetics (movement in body), and dynamics (mechanism of action). [S5]
- **Ligand:** Any molecule (drug or neurotransmitter) that binds to a receptor. [S6]

How Drugs Interact (Agonists vs. Antagonists):

[S26]

Type	Mechanism
Full Agonist	Binds and activates receptor to 100% capacity (E_{max}).
Partial Agonist	Activates but hits a "ceiling" (e.g., 60%) regardless of dose.
Competitive Antag.	Fights for the same binding site as the neurotransmitter.
Non-competitive	Binds to a different site (allosteric), changing receptor shape.

Data Interpretation (Green Boxes - Exam Critical):

[S35, 37]

- **Binding Affinity (K_i):** Represents the concentration required to occupy 50% of receptors.
 - Lower K_i = **Higher affinity** (drug is "stickier"). ["How sticky is the drug?"]
- **Potency (EC_{50}):** Concentration required to exert 50% of the maximal effect.
 - Lower EC_{50} = **Higher potency** (needs less drug to activate). ["How strong is the signal?"]
 - **Potency Order:** LSD > Psilocin > DMT > Mescaline.

[S38]

3.2 Neurotransmitter Systems

The 3 Major Monoamines:

[S11-16]

System Comparison

System	Origin (Anatomy)	Function & Psychedelic Relevance
Serotonin (5-HT) <i>(Tryptamine)</i>	Raphe Nuclei (Brainstem)	Mood, perception, sleep. → Primary target of psychedelics.
Dopamine (DA) <i>(Catecholamine)</i>	VTA & Subst. Nigra (Midbrain)	Reward, movement, motivation. → Psychedelics do not strongly interact (Low addiction risk).
Norepinephrine <i>(Catecholamine)</i>	Locus Coeruleus (Brainstem)	Arousal, stress, "Fight or Flight". → Few psychedelics interact directly.

Safety Note: Classic psychedelics do **NOT** cause Serotonin Toxicity (Syndrome). Stimulants cause toxicity because they increase intrasynaptic 5-HT (release), whereas psychedelics do not (they are direct agonists).
→ they mimic serotonin rather than dumping it like stimulants do

[S13]

3.3 Receptors Transporters

Receptor Basics:

[S22]

- Most 5-HT receptors are **GPCRs** (G-Protein Coupled Receptors).
- *Exception:* 5-HT₃ is a Ligand-gated Ion Channel (involved in nausea).
- **Signaling:** GPCRs work via G-proteins and β -arrestin pathways.

Key Receptors (The "Cast of Characters"):

[S27-30]

Receptor	Role in Psychedelic Experience
5 – HT_{2A}	The Initiator (Excitatory). Essential for psychedelic effects and hallucinations. <i>Potency Order:</i> LSD > Psilocin > DMT > Mescaline.
5 – HT_{1A}	The Moderator (Inhibitory). Presynaptic "Auto-receptor." Reduces anxiety/stress. Dampens psychedelic intensity.
5 – HT_{2B}	The Heart Risk. Chronic activation (e.g., daily microdosing) is linked to Valvulopathy (heart valve disease).
5 – HT_{2C}	The Anti-Addictive. Activation inhibits dopamine release, potentially explaining the non-addictive nature of psychedelics.

Transporter Interactions (SERT)

[S19]

Most classic psychedelics (e.g., LSD, Mescaline) do **not** interact with transporters.

Exceptions (Tryptamines):

- **Psilocin:** Inhibits SERT (Serotonin Reuptake Transporter).
- **DMT:** Inhibits SERT *and* NET (Norepinephrine Transporter) and acts as a **Serotonin Releaser**.

3.4 Neuroplasticity (The Healing Mechanism)

Mechanism of Healing

[S39-42]

Definition: The brain's ability to reorganize via **Structural** (new synapses/neurons) and **Functional** (communication patterns) changes.

The Process:

1. Drug activates 5 – HT_{2A} receptor.
2. Triggers upregulation of **BDNF** (Brain-Derived Neurotrophic Factor).
3. Result: **Synaptogenesis** (formation of new synapses) & Dendritogenesis (growth).

Key Takeaway: These structural changes persist for **weeks/months** after the acute effects wear off, aiding recovery from injury or illness (e.g., depression), and potentially explaining long-term therapeutic effects..

4. Pharmacology II: Bioanalysis & PK

4.1 The Journey: ADME Concepts

Pharmacokinetics (PK)

Definition: "What the body does to the drug." [S6]

- **A (Absorption):** Getting into the blood.
 - **Salts (e.g., Tartrates):** Improve stability and solubility but change the **Molecular Weight**. Dosing must be adjusted (e.g., LSD base vs. LSD tartrate). [S7]
- **D (Distribution):** Spreading to tissues.
 - **Volume of Distribution (V_d):** Theoretical volume. If $V_d >$ body volume, the drug is accumulating in tissues/organs outside the blood. [S8]
- **M (Metabolism):** Liver enzymes (CYP450) transform lipophilic compounds into **hydrophilic** (water-soluble) products for excretion. [S9]
- **E (Elimination):** Excretion via Kidneys (Urine) or Bile.

4.2 The Tool: Bioanalysis (LC-MS/MS)

The Method: LC-MS/MS (Liquid Chromatography-Tandem Mass Spectrometry). [S11]

- **LC:** Separates the mixture based on polarity/size (using HPLC columns).
- **MS:** Detects and weighs the molecules.
- **Sensitivity:** Essential because psychedelics are potent (pg/mL concentrations). Modern methods can detect **picograms** ($10^{-12}g$). [S18]

Method Validation Guidelines (FDA/EMA)

[S16]

To be scientifically valid, a bioanalytical method must demonstrate:

- **Linearity:** Works across a defined calibration range.
- **Accuracy & Precision:** The method is truthful and repeatable.
- **Selectivity & Sensitivity:** Distinguishes drug from matrix; detects low levels.
- **Stability:** Samples do not degrade during storage/processing.
- **Matrix Effect:** Consistent extraction recovery.

4.3 Specific Drug Profiles & PK Data

Key Concepts:

[S33, 8]

- **Orally Active:** Survives gut/liver enzymes (LSD, Psilocybin, Mescaline).
- **Prodrug:** Biologically inactive until metabolized (Psilocybin \rightarrow Psilocin).
- **Potency Order:** LSD $>$ Psilocybin & DMT $>$ Mescaline. [S37]

1. LSD (The Long Haul)

[S19, 23]

Profile: High potency, long duration.

- **Metabolism:** Extensive (Liver). Only 1% excreted unchanged in urine. Dependent on **CYP2D6** (genetics affect duration).
- **PK Data:**
 - t_{\max} (Time to peak): 1.2–1.5 h (Fast absorption).
 - V_z/F (Distribution): 37–42 L.
 - $t_{1/2}$ (Half-life): 3.9–4.2 h (Slow elimination).

Interaction Warning (CYP2D6 & SSRIs):

[S23]

- ****Poor Metabolizers**** (Genetics) have higher plasma levels and longer effects.
- ****SSRIs** (e.g., Fluoxetine): ****Inhibit CYP2D6** → Increases LSD plasma concentration.
- ****The Counterbalance:**** Despite higher concentration, effects are ****not**** increased because SSRIs down-regulate/block the receptors. No dose adjustment is usually needed.

2. Psilocybin (The Prodrug)

[S27, 29]

Mechanism: Biologically **INACTIVE** until converted.

- **Activation:** Dephosphorylated by *Alkaline Phosphatase* → **Psilocin** (Active).
- **Elimination:** Cleared via Glucuronidation.
- **PK Data (for Psilocin):**
 - t_{\max} : 1.9–2.2 h.
 - V_z/F : 413–450 L (High tissue distribution).
 - $t_{1/2}$: 1.4–1.8 h (Faster clearance than LSD).

3. Mescaline (The Slow Burn)

[S25]

Profile: Slowest onset of the classic psychedelics.

- **Absorption:** Delayed uptake leads to delayed effects.
- **Metabolism:** Deamination and N-acetylation.
- **PK Data:**
 - t_{\max} : \approx 2.3 h (Slowest absorption).
 - V_z/F : 188–213 L.
 - $t_{1/2}$: 3.6 h.

4. DMT (The Sprinter)

[S33, 35]

Profile: Orally inactive; very fast IV action.

- **Oral Issue:** Destroyed by **MAO-A** enzyme in gut. Needs MAO-Inhibitor (Ayahuasca) to work orally.
- **PK Data (Intravenous):**
 - t_{\max} : $<$ 3 min (Instant onset).
 - V_z : 746–831 L (Huge tissue redistribution).
 - $t_{1/2}$: \approx 14–16 min (Very rapid elimination).

5. Psychology III: The Mind & Psychotherapy

5.1 The Tripartite Mind Model

The Three Parts of the Mind

The mind is traditionally divided into three interacting components (Hilgard, 1980): [S5]

1. **Cognition:** Perception and thought.
2. **Affect:** Emotion and mood.
3. **Conation (Volition):** The will; how we act upon our states.

Context: The study of the mind often requires an interdisciplinary approach (Psychology, AI, Neuroscience, Philosophy), collectively known as **Cognitive Science**. [S5]

5.2 Psychedelic Modulation of the Mind

Psychedelics induce "Nonordinary" states in all three domains. These are not random; they are utilized therapeutically (e.g., in the Spring Grove experiments).

1. Nonordinary Cognition (Perception) [S8-9]

The Experience: Vividly real perceptions, often without external stimuli.

- *Open-eye:* Objects/photos coming alive (e.g., seeing a son move in a still photo).
- *Closed-eye:* Symbolic visions (e.g., dying, being buried, visual patterns).

Therapeutic Function: Visuals are used to **activate meaningful associations** and facilitate insight. They are symbolic representations of inner states.

Example (Open-Eye Visual): A patient looked at a photo of his son:

"My son became alive in the picture... There was actually a hair... out of place, and I pushed it down." [S8]

→ The hallucination facilitated a feeling of care and resolution.

2. Nonordinary Affect (Emotion) [S11]

The Experience: Unusually deep, spontaneous, and authentic emotions.

- *Catharsis:* "Tremendous emotional release" (laughter or crying).
- *Universality:* Feeling that one's grief connects them to "all people."

Therapeutic Function: Emotional Breakthroughs. Releasing tension opens new perspectives on the self and life.

Example (Release):

"I think it was the best laugh I ever had... tremendous emotional release... At the end I felt that a great weight had been taken off of me." [S11]

3. Nonordinary Conation (The Will) [S10]

The Experience: A shift in how one directs their will.

- *The Challenge:* Patients often try to "figure it out" or control the scary parts.
- *The Shift: Surrender.* A willful letting go of control.

Therapeutic Function: Surrender is actively encouraged ("Let the music carry you"). It is often the **prerequisite** for the emotional breakthroughs and insights to occur.

Example (Therapist Instruction):

*"Enough figuring out for now... **Surrender!** Let the music carry you."* [S10]

6. Pharmacology III: Animal Research

6.1 Foundations & Ethics

Core Glossary

[S7]

- **In Vivo:** Experiments performed in the living organism.
- **Ex Vivo:** Experiments performed on tissue taken out of the organism (e.g., brain slices) but kept functional.
- **Vehicle:** The control solution (e.g., saline, solvents) without the active drug.
- **Saline:** Physiological solution (0.9% NaCl), often used as a vehicle.
- **Knock-out (KO):** Gene of interest is deleted/inactivated.
 - *Constitutive:* Gene gone in all cells from the beginning.
 - *Conditional:* Gene deleted only under specific conditions (e.g., specific brain area).

The Purpose of Animal Models

[S9, 14]

Animal models allow us to answer mechanistic questions ("How does it work?") due to high **phylogenetic resemblance** (conserved anatomy/physiology, e.g., SERT structure).

- **Causality:** We can manipulate targets (e.g., KO mice) to prove a specific receptor causes an effect.
- **Tissue Access:** Bioanalysis and staining (c-Fos) possible.
- **Safety:** First line of testing for toxicity and dose-finding.

Species	Utility
Mice & Rats	Standard. Fast reproduction, genetic manipulation (KO), standardized behavior.
Zebrafish	High throughput screening (drug administered in water).
Fruit Fly / Nematode	Genetic screening, basic circuitry.
Primates	Rare. Used only for complex cognitive questions (ethics).

Regulatory Framework (The 3Rs):

[S15]

Ethical Requirements

Authorization is based on **Harm-Benefit Analysis** (Gain of knowledge > Distress).

Principle	Requirement
1. Replace	Use alternatives (simulations, cell cultures) if possible.
2. Reduce	Keep number of animals to the absolute minimum.
3. Refine	Minimize pain, suffering, and distress.

6.2 Acute Effects: Behavioral Readouts

1. The Head-Twitch Response (HTR)

[S18-19]

Definition: A rapid, rotational jerk of the head in mice/rats.

- **Why it matters:** It is the behavioral proxy for **hallucinations**.
- **Predictive Validity:** Highly correlated with human potency ($r = 0.94$).
- **Dose-Response:** Follows a ****bell-shaped curve**** (effect decreases at very high doses).
- **Mechanism:** Strictly $5 - HT_{2A}$ **dependent**.
 - *Proof:* Blocked by Ketanserin ($5 - HT_{2A}$ antagonist) and absent in $5 - HT_{2A}$ KO mice.

2. Drug Discrimination (Interoception)

[S21]

Setup: Animals trained to press levers based on internal cues (Drug vs. Vehicle).

- **Purpose:** Proves the subjective state is distinct from placebo.
- **Result:** Animals learn to recognize the "interoceptive cue" of the drug.
- **Note:** Allows generation of dose-response curves and mechanistic studies (e.g., using antagonists to see if the "feeling" disappears).

6.3 Long-Term Effects: Therapeutic Potential

1. Depression Models [S24]

Sucrose Preference Test (Anhedonia):

- *Concept:* Stressed mice drink less sugar water (loss of pleasure).
- *Result:* Psilocybin restores preference → Antidepressant effect.
- **Important Mechanism:** This effect was ****NOT**** mediated via $5 - HT_{2A}$ receptors (Ketanserin didn't block it). It might be mediated by the **TrkB receptor**.

Learned Helplessness: Psilocybin reduces "giving up" behavior in inescapable stress (escape failure).

2. Addiction Models [S25]

Self-Administration (Gold Standard):

- *Result:* Animals do **NOT** self-administer classic psychedelics (non-addictive).
- *Therapy:* **Tabernanthalog (TBG)**, a non-hallucinogenic analog of Ibogaine, decreased motivation for alcohol and heroin intake.

6.4 Proving the Mechanism (Physiology)

1. Measuring Activity: c-Fos & Electrophysiology [S29-33]

A. c-Fos Staining (The Snapshot):

- **What is it?** An "Immediate Early Gene" expressed upon neuronal activation.
- *Analogy:* Think of it as a "Recent Activity Log." When a neuron fires strongly, it switches on this gene within minutes to make proteins.
- **Result:** Psychedelics increase c-Fos in the **Medial Prefrontal Cortex (mPFC)**.
- **Mechanism:** This increase is blocked by $5 - HT_{2A}$ antagonists.

B. Electrophysiology (The Live Feed):

- **Method:** Single-unit recording of neuronal firing in vivo.
- **Result:** Increased excitability/firing in pyramidal cells.

2. Neuroplasticity: Structural vs. Functional [S44]

Structural Plasticity:

- Change in physical structure (e.g., more **synapses/spines**).
- Psilocybin increases **Dendritic Spine density** in the cortex within 24h.
- This growth persists for days/weeks (long-term wiring change).

Functional Plasticity:

- Change in signaling efficacy (e.g., **presynaptic potentiation** / more neurotransmitter release).

3. Proof of Causality (Ketamine Study) [S46]

The Observation: Psychedelics/Ketamine increase dendritic spines (Structural Plasticity).

- *Question:* Is this growth *necessary* for the antidepressant effect?
- *Method:* Used light (optogenetics) to selectively **delete newly formed spines**.
- *Result:* The antidepressant effect disappeared.
- *Conclusion:* Structural plasticity is **causally linked** to the therapeutic benefit.

Food for Thought: Is the "Psychedelic Experience" (Trip) necessary for neuroplasticity and healing, or can we separate them (e.g., Psychoplastogens)? [S42]

7. Psychedelic Psychotherapy I: Foundations & Trials

7.1 Foundations of Psychotherapy

Definitions

Psychotherapy: Targeted professional treatment of mental disorders or psychologically induced physical disorders using psychological methods. [S5]

Diagnostic Manuals:

- **ICD (WHO):** Global standard, broad descriptions. Used for *insurance/clinical coding*. [S7]
- **DSM (APA):** US standard, detailed criteria. Used primarily for *research*.

Empirically Supported Treatments

Defined by the APA (1990s) as treatments based on findings that have shown efficacy in **at least two randomized controlled trials (RCTs)** (i.e., superior to placebo or equivalent to established treatment). [S10]

Common Types of Psychiatric Disorders:

[S8-9]

Category	Examples	Key Characteristics
Affective	Major Depression	Mood primarily affected (depressive or manic).
Anxiety	Generalized, Phobias	Tension, racing thoughts, nervousness.
Psychotic	Schizophrenia	Impaired reality testing (delusions, hallucinations).
Eating	Anorexia, Bulimia	Disturbances in eating behaviors and thoughts.
Trauma	PTSD	Response to trauma (intrusive symptoms, avoidance).
Neurodivergence	Autism, ADHD	Atypical cognitive/social functioning from early dev.
Addictive	Alcohol Use Disorder	Compulsive substance use or engagement.
Obsessive-compulsive	OCD, Hoarding	Intrusive thoughts; repetitive behaviors to reduce anxiety.
Personality	Borderline, Antisocial	Inflexible patterns deviating from cultural norms.

The 4 Schools of Psychotherapy & Common Factors

[S12-14]

Schools:

1. **Psychoanalytic/Psychodynamic:** Reveals *subconscious* roots ("neuroses").
2. **Cognitive Behavioral (CBT):** Changes maladaptive *thoughts and behaviors*.
3. **Systemic:** Focuses on *interpersonal relationships* (problem is relational).
4. **Humanistic:** Focuses on the whole person (*unconditional positive regard*).

Common Factors (What makes ANY therapy work):

[S14]

- **Therapeutic Alliance:** Feeling understood/safe.
- **Professional Context:** Boundaries/confidentiality.
- **Procedure (Ritual):** Specific order/location.
- **Theory (Rationale):** An explanatory model for and to prevent the suffering.

7.2 History & Therapeutic Paradigms

Historical Concept (1950s): "Artificial Delirium"

[S16]

Humphry Osmond treated alcoholics with high-dose LSD.

Hypothesis: The drug induces a frightening "artificial delirium" (hitting rock bottom), scaring the patient into abstinence.

Result: 45% abstinent after one year. **However**, few patients reported the effects as "frightening" (contradicting the hypothesis).

Two Directions of Treatment:

[S22]

Approach	Dose	Mechanism/Goal
Psycholytic	Low	Loosen defenses to deepen <i>psychoanalytic</i> talk therapy.
Psychedelic	High	Induce a peak Mystical Experience for transformation.

The Modern Model: Psychedelic-Assisted Psychotherapy. The substance is an adjunct to therapy, structured into: **Preparation** → **Dosing** → **Integration**. [S21]

Factors Influencing Effects [S20]

Pharmacological: Dose is the main factor influencing acute effects. **Non-Pharmacological ("Soft" Factors):** Have a great impact.

- **Set:** Personality, mental state before drug intake.
- **Setting:** Environment.

7.3 Clinical Research Status

The 4 Phases of Clinical Trials (GCP) [S24]

- **Phase I:** Safety & Dosage (20–80 Healthy volunteers).
- **Phase II:** Efficacy & Side Effects (Patients with condition, ≈100-500). Lasts ≈ 2 years.
- **Phase III:** Confirmation (Large, placebo-controlled). **Required for approval.** Lasts >4 years.
- **Phase IV:** Post-marketing monitoring (Long-term safety, real-world use).

Current Status: [S25-29]

- **Psilocybin/LSD:** Phase II/III. Viewed as "**Rapid-onset antidepressants.**"
 - *Indications:* Depression (MDD), Anxiety, Addiction (Alcohol/Nicotine).
 - *Example Result:* LSD for MDD showed ≈ **50% symptom reduction.**
- **MDMA:** Phase III completed for PTSD but **rejected by FDA** (2024). [S33]
 - *Mechanism:* Releases 5-HT, NE, and **Oxytocin.**
 - *Acute effects:* Feelings of connectedness (to others and oneself), euphoria, enhanced empathy, anxiolytic
 - *Critiques:* Functional unblinding (placebo ineffective), unclear contribution of psychotherapy vs. drug, inadequate side effect recording, prior MDMA use in participants.

7.4 Mechanisms, Safety & Regulation

Psychological Contribution (The "Psychedelic" View) [S35-37]

Correlation: High ratings of "mystical-type experiences" (MEQ) are associated with therapeutic efficacy (symptom reduction) in depression and anxiety. **Other Factors:** Emotional breakthrough (catharsis), Insights, Connectedness, Increased emotional spectrum.

The Patient Voice: Healing through Challenge [S44]

"Of course, all the pain came up, and it had been there for a while [...]. [It] felt very intense, and I even had physical pain, but it was also healing, because I am very well aware that this somehow belongs to me, and it was kind of buried. That is why I'm glad it came up." – Patient with MDD (after 2 doses of LSD)

Biological Contribution (The Counter-Point) [S39]

Case Study: A patient with multiple severe mental disorders showed significant improvements after LSD treatment **despite experiencing minimal psychoactive effects** (low scores on 5D-ASC). *Implication:* Effectiveness may be physiological/neuroplastic as well as psychological.

Safety Profile: [S41, 45, 46]

- **Acute:** Transient anxiety (20-40%), physiological arousal (BP/HR ↑). Manageable.
- **Long-term:** Destabilization, HPPD (rare/mild). **No psychosis** in current trials.
- **Interactions:** Clinical trials showed interaction with antidepressants (SSRIs) is **safe** and even **reduces** psychedelic-induced anxiety → but may **dampen** effects; pausing them risks withdrawal.

Switzerland's "Limited Medical Use":

[S47-49]

- Approval for individual patients (Severe illness + Treatment resistance).
- Substances: LSD, Psilocybin, MDMA.
- **Generalizability:** Subjective/Adverse effects in these patients are similar to clinical trials and healthy participants.

7.5 Outlook: The Future of the Field

What comes next?

[S50]

- **Approvals:** Psychedelics will likely be approved as "**Rapid-onset antidepressants**" within the next few years.
- **Ongoing Research (Phase III/IV):** Will focus on identifying:
 - Rare risks/side effects.
 - Ideal dosing schemes.
 - The appropriate level of interpersonal support required.

8. Psychotherapy II: Process, Mechanisms & Safety

8.1 The Practical Framework

The Treatment Procedure

[S9]

Treatment follows a specific chronological structure (\approx 20 working hours for the therapist):

1. **Assessment:** Suitability check.
2. **Approval:** (In CH: BAG approval for "Exceptional Medical Use").
3. **Preparation:** Building alliance and setting intentions.
4. **Drug Day:** \approx 10 hours (combined with long-term psychotherapy).
5. **Integration:** Processing the experience in subsequent sessions.

Suitability: Who is it for?

[S7-9]

- **Potential:** Option for therapy resistance; minor side effects; popular with patients; provides new insight.
- **Limitations:** Not for everyone; expensive (therapist/substance); risk of abuse.
- **Exclusion Criteria (Strict):**
 - History of psychosis or severe bipolar disorder.
 - Family history of schizophrenia.
 - Epilepsy.
 - Lack of a good working relationship ("Mountain Guide" analogy).
 - **Medication interactions** or Unrealistic expectations.

8.2 Ethics, Safety & Dosing Strategies

Safety Risks: Abuse & Expectations

[S13-17]

Patients in altered states are hypersuggestible and vulnerable.

- **The Danger:** Therapist boundary violations (e.g., sexual/physical abuse).
- **Touch Guidelines:**
 - Simple touch (hand/shoulder) is okay if **agreed in advance**.
 - Complex bodywork increases abuse risk.
- **Co-Sitting:** Having two therapists (often male/female) is standard to prevent abuse.
- **Expectation Management:** Preventing disappointment (no "miracle cure") is a key safety factor.

Critique of Catharsis:

[S14]

The old idea of "screaming it out" (aggressive catharsis) is outdated. Research shows it may **reinforce aggression**. Gentle cognitive/emotional working-through is preferred.

Dosing Strategy: "Psycholytic" Range

[S19, 21]

Goal: Induce processing while retaining patient self-control.

- **Doses:** MDMA 75–125 mg | Psilocybin 15–25 mg | LSD 100–200 mcg.
- **High Dose Warning:** Higher doses increase "bad" drug effects but do **not** necessarily improve "good" effects.

8.3 Neurobiological Mechanisms

REBUS Theory (Carhart-Harris)

[S21]

RElaxed **B**eliefs **U**nder **S**ychedelics.

- **Concept:** The brain usually relies on rigid "Top-Down" predictions (priors).
- **Mechanism:** Psychedelics **weaken** these priors (increase Entropy/Disorder).
- **Result:** "Bottom-Up" sensory/emotional information flows freely, allowing the brain to break rigid patterns (like depression/OCD).

Mechanism: Psychedelics promote **Neuroplasticity** (ability to form new connections).

The Core Concept: Plasticity is not inherently "healing"; it is **neutral susceptibility**.

- **Time Window:** Psychotherapeutic effects may be enhanced in the **30 days** after intake (sustained plasticity).
- **The "Barrier" Model:** Psychedelics act as **"Plastogens"** (lowering the barrier between Health and Disease).
- **The Risk (Bidirectionality):** Because the barrier is low, movement is easy in *both directions*.
 - *Supportive Setting:* Facilitates movement from Depression → Health.
 - *Adverse Setting:* Can lead to **destabilization** (moving from Health → Distress).
- **Interaction: Benzodiazepines** act as **"Plasticity Blockers"** (heighten the barrier), potentially preventing the therapeutic effect.

8.4 Therapeutic "Effects" (Phenomenology)

Specific psychological mechanisms described in the course:

1. The Helioscope Effect

[834-861]

Metaphor: You cannot look directly at the sun (trauma) without burning your eyes.

- **Mechanism:** Psychedelics act as a "Helioscope" (filter), allowing patients to look at personal "suns" (trauma/fear) without being burned.
- **Specific Features:**
 - No planned confrontation; the **substance leads** the patient to the stimuli ready for processing.
 - **Unwinding:** It may take several sessions to travel through the traumatic past.
 - Dramatic catharsis/body work is **not necessary** for processing.

2. The Glade Effect ("Lichtung")

[843-861]

Concept: Depression/Anxiety creates "Tunnel Vision."

- **Mechanism:** Psychedelics "clear the forest," opening a glade where new options appear.
- **Trait Change:** Increases **Openness** (personality trait).
- **Risk:** Increased entropy (openness) is **not** good for everyone (e.g., Mania/Schizophrenia).

3. Mindfulness & Embodiment Effects

[830-833]

Mindfulness Effect:

- **Characteristics:** Intentionality, clarity (distinct from "intoxication"), and non-judgment.
- **Therapeutic Value:** It fosters an attitude of "interested neutrality" toward symptoms.
- *Metaphor:* "Behind the clouds of thought appears a little piece of blue sky."

Embodiment Effect:

- **The Problem:** Depression/Anxiety often cause dissociation ("I feel disconnected").
- **The Fix:** Psychedelics facilitate "fully inhabiting the body," grounding emotions in physical sensation.

4. Positivity & Meaning Effects

[830-849]

Positivity Effect (Anti-Anhedonia):

- **The Problem:** Anhedonia (insensitivity to positive stimuli).
- **The Experience:** A feeling of "new life" or "fresh light." Senses vibrate with sensitivity.
- *Patient Quote:* "The certainty that everything I was doing was actually good."

Meaning Effect (Resilience):

- **Significance:** Experiences are often rated among the "Top 5" most meaningful of a lifetime.
- **Mechanism:** Connects the patient to larger temporal cycles (eternity/purpose).
- *Nietzsche Principle:* "He who has a **why** to live for can bear almost any **how**."

Ego Dissolution (Self-Transcendence):

- **Mechanism:** Breakdown of the **Narrative Self** (the voice that ruminates/criticizes).
- **Result:** "Witness Consciousness." Seeing personal problems from an outside/observer perspective.

Self-Efficacy:

- **Definition:** The internal experience of success ("I can do it").
- **Key Insight:** "I have experienced that I *can* be different. My self-image is a narrative I can change."

9. Psychedelic Physiology: Systems & Body

9.1 Foundations: The Whole-Body Phenomenon

Definitions

Physiology: The study of the functions of living organisms (cells, organs, systems).

- **Psychedelic Physiology:** Studies the organism under the influence. It is a **whole-body phenomenon**, affecting not just the brain but the heart, gut, and hormones. [S4-5]

The Nervous System Architecture

[S7-8]

The brain does not operate in isolation; major organs have their own local neural circuitry.

- **Central (CNS):** Brain & Spinal Cord.
- **Peripheral (PNS):** Somatic & Autonomic.
- **Local Circuitry:**
 - **Enteric Nervous System (ENS):** The "Gut Brain" (\approx 500 million neurons).
 - **Others:** Cardiac (\approx 40k neurons), Pancreatic, and Hepatic nervous systems.

9.2 Central Mechanisms: The Nervous System

The 5 – HT_{2A} Receptor: The Key Target

[S9-11]

Core Mechanism: The 5 – HT_{2A} receptor is the key serotonin target mediating psychedelic effects.

- **Affinity (K_i):** High-affinity binding to 5 – HT_{2A} (and 5 – HT_{1A}) explains LSD's high potency and long duration.
- **Correlation:** There is a strong correlation between 5 – HT_{2A} binding affinity and human hallucinogenic potency.
- **Proof:** Effects are blocked by **Ketanserin** (antagonist).

Localization (Where is it?)

[S14-15]

- **Macroscopic:** Highest density in the **Cortex** (Visual, Prefrontal), linking altered perception, emotion, and meaning. Low density in cerebellum.
- **Microscopic:** Located on **Layer V Pyramidal Neurons**.
- **Function:** These neurons act as a "bridge," linking **Top-Down** (predictions) and **Bottom-Up** (sensory) signals.

New Finding: Intracellular Activation

[S12-13]

Concept: Receptors are not just on the surface; they are also inside the cell.

- **Mechanism:** Psychedelics (lipophilic) can cross the cell membrane to activate **Intracellular 5 – HT_{2A} receptors** (Golgi). Serotonin (polar) cannot do this easily.
- **Result:** This intracellular activation drives **Neuroplasticity** (dendritic growth).

Psychoplastogens

[S18]

Definition: Compounds capable of promoting rapid structural/functional neuroplasticity **without** causing hallucinogenic effects (e.g., Tabernanthalog).

- **The Goal:** To harvest the therapeutic benefits of neuroplasticity **without** causing subjective hallucinations ("The Trip").
- **Clinical Potential:** Promising for scaling treatments since they might not require the intensive monitoring of classic psychedelics.

B. Network Effects (Neuroimaging)

Global Brain Changes:

[S16-17]

- **Integration** \uparrow : Increased global communication (regions that don't usually talk start connecting).
- **Segregation** \downarrow : "Desynchronization." Specialized networks (like visual or default mode) lose their strict boundaries.

Metabolic & Vascular Changes:

[S18-20]

- **Psilocybin:** Constricts the Internal Carotid Artery (ICA) → Global decrease in cerebral blood flow (CBF).
- **MDMA:** *Increases* CBF in Prefrontal Cortex (reflection/regulation) but *Decreases* CBF in Amygdala (fear/stress).

C. Neural Models of Altered Consciousness

Three models explain how psychedelics reorganize brain function

[S23]:

1. CSTC Model (Thalamic Gating)

[S24]

Cortico-Striatal-Thalamo-Cortical Loop.

- **Normal:** The **Thalamus** filters sensory info (Gating) before sending it to the cortex.
- **Psychedelic:** Disruption of this gating leads to **Sensory Overload**.
- **Mechanism:** $5-HT_{2A}$ activation inhibits the TRN (Thalamic Reticular Nucleus) → Disinhibition of the Thalamus → Flood of info to Cortex.

2. REBUS & ALBUS Models (Entropy)

[S25, 27]

REBUS (Relaxed Beliefs Under Psychedelics):

- **Concept:** The brain is an "Entropic Brain." Psychedelics increase entropy (disorder/uncertainty).
- **Mechanism:** Loosens high-level "Top-Down" priors (beliefs/expectations).
- **Result:** Opens perception to new interpretations (Plasticity).

ALBUS (Altered Beliefs): Refines REBUS.

- Adds that some beliefs are actually *strengthened* (SEBUS), explaining the "Noetic quality" (feeling of absolute truth) of the trip.

3. CCC Model (Claustrum)

[S26]

Cortico-Claustro-Cortical Loop.

- **The Claustrum:** The "Conductor" of the brain. It synchronizes cortical networks for goal-directed tasks.
- **Psychedelic Effect:** Desynchronizes the Claustrum.
- **Result:** Breakdown of stable networks (Default Mode Network) and dissolution of the "Self."

9.3 Peripheral Systems: The Body Trip

1. Cardiovascular & Respiratory System

[S32, 38]

Acute Effects (Transient):

- **Blood Pressure:** Increases (Psilocybin effect > LSD).
- **Heart Rate:** Increases (LSD effect > Psilocybin).

Safety Warning ($5-HT_{2B}$):

- Many psychedelics activate the $5-HT_{2B}$ receptor on heart valves.
- **Risk:** Chronic activation (e.g., daily microdosing) is theoretically linked to **Valvulopathy** (heart valve fibrosis). Classic psychedelics are generally safe in acute doses.

2. Endocrine System

[S42, 44]

Oxytocin ("Love Hormone"):

- **MDMA:** Triggers massive release.
- **LSD:** Also increases levels (to a lesser extent).
- *Effect:* Promotes empathy, trust, and social bonding.

HPA Axis (Stress Regulation):

- Psychedelics activate the Hypothalamo-Pituitary-Adrenocortical axis.
- **Effect:** Transient release of **Cortisol** (Stress response).
- *Therapeutic Relevance:* May help normalize dysregulated stress pathways (e.g., in PTSD/Depression).

Other Systemic Effects:

System	Effect
Thermoregulation	Pyrexia. Mild increase in body temperature (hyperthermia) via hypothalamic regulation. [S29]
Muscular	Tremors, increased muscle tone, twitches. [S45]
Gut-Brain Axis	Serotonin links the gut (microbiome) and brain. [S46]
Mitochondria	5 – HT_{2A} agonists affect mitochondrial biogenesis and ATP function. [S50]

9.4 Cellular & Immune Mechanisms

The Immune System (Anti-Inflammatory) [S45]

Concept: Psychedelics modulate immune function via 5-HT receptors expressed on immune cells.

- **Effect:** Generally **Anti-inflammatory**.
- **Mechanism:** Suppression of inflammatory cytokines (e.g., TNF- α , IL-6).
- **Relevance:** Potential for treating autoimmune conditions and stress-related disorders (which often involve chronic inflammation).

Mitochondria (Energy Metabolism): [S50]

- **Biogenesis:** 5 – HT_{2A} agonists stimulate the creation of new mitochondria.
- **Function:** Increases intracellular ATP (energy) production.
- **Implication:** May help repair metabolic deficits found in depression.

9.5 Synthesis: How Physiology becomes Therapy

The Physiological Basis of Healing [S44]

Therapeutic effects are not just psychological; they rely on normalizing dysregulated physiological systems:

1. **Neural Reorganization:** Increased global connectivity (Entropy) disrupts rigid pathological networks (like the DMN in depression).
2. **Stress Regulation:** Normalization of the **HPA Axis** (Cortisol) reduces chronic stress reactivity.
3. **Homeostasis:** Anti-inflammatory effects and improved mitochondrial energy metabolism repair systemic imbalances.

Conclusion: *Studying psychedelics requires an integrative approach linking neural, autonomic, hormonal, and immune mechanisms.*

Summary: Psychedelics are not just "brain drugs." They modulate central networks (Entropy, Gating) AND peripheral physiology (Heart, Hormones, Gut). An integrative approach is essential. [S57]

10. Psychedelics & Politics

10.1 Foundations: History & Definitions

What is "Political"?

[S4]

Politics: Activities/relationships influencing how a space is governed and resources distributed (Power structures). **Policy:** The set of principles/rules guiding decision-making.

The 3 Historical Waves:

[S7, 21]

1. **1st Wave:** Ancient/Indigenous use (Ritualistic contexts).

2. **2nd Wave (1950s–60s):**

- Scientific boom (>1000 papers) → Escaped to Counterculture (Leary).
- **The Backlash (1970):** Nixon's "War on Drugs" criminalized substances (Schedule I).
- *Political Motivation:* Explicitly targeted anti-war (Hippies) and Black communities to disrupt them. [S16]

The Politics of Prohibition (1970s)

[S13, 16]

The ban was not just about health risks; it was a tool for political control.

- **Target:** The Nixon administration explicitly targeted the "Anti-war Left" (Hippies) and "Black people."
- **Strategy:** By associating these groups with drugs (LSD/Marijuana/Heroin) and criminalizing them, they could disrupt their communities and arrest leaders.
- *Quote:* "Did we know we were lying about the drugs? Of course we did." (John Ehrlichman, Nixon's aide).

3. **3rd Wave (Renaissance):** Post-2000.

- Driven by rigorous science ("Anti-Leary" sober scientists).
- *New Trend:* Microdosing in Silicon Valley (Neuro-enhancement aligned with capitalism).

10.2 Key Concepts

Political Pluripotency (Exam Critical)

[S11]

The Myth: Psychedelics inherently make people liberal, environmentalist, or anti-authoritarian.

The Reality: They are **non-specific amplifiers** of the political "Set and Setting."

- They can reinforce *any* ideology, including authoritarianism or right-wing extremism (e.g., "Right-wing Psychedelia").
- The political shift depends on the context, not the drug.

Psychedelic Exceptionalism:

[S14]

The ideology that psychedelics are "better/holier" than "bad drugs" (like heroin/meth). This risks increasing stigma for other drug users and ignoring the structural causes of addiction.

10.3 The 4 Imaginaries - Socio-psychedelic imaginaries (Paths to Reintegration)

Four competing visions for how psychedelics should exist in society

[S25]:

1. Biomedicalization (The Mainstream Path)

[S27]

Logic: "It is a Medicine."

- **Route:** Clinical Trials (FDA/EMA approval).
- **Access:** Restricted to **Patients** with a specific diagnosis.
- **Gatekeepers:** Doctors/Psychiatrists.
- *Politics:* Assimilated into the capitalist healthcare system; focuses on the "Mental Health Crisis."

2. Decriminalization (The Grassroots Path)

[S30]

Logic: "Nature shouldn't be illegal" / Cognitive Liberty.

- **Route:** City Councils/Ballots (e.g., Oakland "Decriminalize Nature").
- **Access:** Universal (lowest law enforcement priority).
- **Politics:** Focuses on human rights, social justice, and plants/fungi ("Entheogens").

3. Legalization (The Regulatory Path)

[S32]

Logic: Regulated Service Model.

- **Route:** State Laws (e.g., Oregon Measure 109, Colorado).
- **Access:** Adults (21+) in licensed Service Centers. **No diagnosis needed.**
- **Politics:** Bypasses the FDA; state-governed access (like Cannabis but supervised).

4. Sacramental (The Religious Path)

[S41]

Logic: "It is a Holy Sacrament."

- **Route:** Religious Exemptions (First Amendment / RFRA).
- **Access:** Members of recognized churches (e.g., NAC, UDV, Santo Daime).
- **Politics:** Protected by religious freedom; Church acts as mediator.

Comparative Politics of the Imaginaries:

[S43-44]

Dimension	Biomedicalization	Decrim / Legalization
Access	Exclusive. Gatekeepers (Doctors), Diagnosis required.	Inclusive. Universal access (Adults), no diagnosis.
Responsibility	Institutional. Standards, regulations, accountability.	Community. Harm reduction, education, peer support.
Naming	"Medicine", "Treatment", "Therapy."	"Entheogen", "Plant Medicine", "Sacrament."
Assimilation	High. Fits into capitalist healthcare (IP/- Patents).	Low. Challenges existing structures; democratic/grassroots.

10.4 Current Context: The FDA MDMA Ruling

Why did the FDA reject MDMA (June 2024)?

[S48-50]

Despite successful Phase III results, the application was rejected due to:

1. **Functional Unblinding:** Patients knew they took MDMA (placebo failed), making efficacy data hard to trust.
2. **Therapy Component:** FDA regulates *drugs*, not *therapy*. They struggled to separate the drug effect from the psychotherapy effect ("Psychedelic-Assisted Therapy" implies two variables).
3. **Safety Gaps:** Inadequate recording of adverse events (e.g., cardiac risks, abuse potential).

11. Psychedelics & Philosophy

11.1 Foundations of Philosophy

The 4 Main Branches

[S5]

- **Metaphysics:** The study of the fundamental nature of reality (Mind vs. Matter).
- **Epistemology:** The study of knowledge (How do we know what is true?).
- **Phenomenology:** The study of structures of consciousness and first-person experience.
- **Ethics:** The study of moral values and rules.

11.2 Philosophy of Mind: The "Hard Problem"

Defining the Problem

[S9, 14, 16]

The Easy Problem: Explaining function and behavior (mechanisms, memory, attention). **The Hard Problem (Chalmers):** Explaining *experience* (Qualia). Why does it "feel like" something to be us?

Key Thought Experiments:

- **Nagel's Bat:** [S11] We can know everything physical about a bat (sonar, brain), but we can never know *what it is like* to be a bat. → Subjective experience is irreducible.
- **Mary's Room:** [S13] If Mary learns something new (what red looks like) after leaving a black-and-white room, then physical facts are not *all* facts.

11.3 Metaphysics: 5 Theories of Reality

How do Mind and Matter relate? (Memorize these)

[S12, 19]

Theory	Definition
Physicalism	Reality is Matter . Mind is just brain activity. (Materialism).
Idealism	Reality is Mental . Matter is an illusion/projection.
Dualism	Two substances: Mind and Matter are separate (Descartes).
Panpsychism	Mind is fundamental . All matter has some consciousness.
Neutral Monism	One substance (neither mind nor matter) underlies both.

The Metaphysical Shift: Psychedelics often shift beliefs **away from Physicalism** and **towards Panpsychism**. This correlates with improved well-being.

[S22]

The "Comforting Delusion" Objection

[S23]

- Question:** If a patient heals because they believe they "saw God" or "The Universe is One," but that belief is false (according to Physicalism), is the therapy valid?
- **Naturalism (Letheby):** We should explain benefits via neuroplasticity, not metaphysics.
 - **Counter-point:** Perhaps the experience reveals a *real* aspect of the world (Mind-at-Large) that normal consciousness filters out.

11.4 Epistemology: Mysticism & Truth

Types of Mysticism (Walter Stace)

[S27]

- **Extrovertive:** Looking outward. Seeing unity *in* the world ("All is One").
- **Introvertive:** Looking inward. A **"Pure Consciousness Event"** (PCE). No thoughts, no senses, just pure void.

Key Concepts:

- **The Filter Theory (Huxley/Bergson):** The brain is a "reducing valve" that limits consciousness to help us survive. Psychedelics open the valve to "Mind-at-Large." [S32]
- **Noetic Quality (James):** The feeling that the experience is "more real than real"—a state of knowledge, not just feeling. [S34]
- **Perennialism vs. Contextualism:** [S28-30]
 - *Perennialism:* All mystics see the same universal truth (Divine Ground).
 - *Contextualism:* Experiences are constructed by culture/expectations.

11.5 Ethics: Cognitive Liberty

Cognitive Liberty (Thomas Metzinger): [S35] The right of every individual to self-determination over their own mind and chemistry.

12. Psychology IV: Religion & Spirituality

12.1 Phenomenology vs. Interpretation

Definitions

[S5]

- **Phenomenology:** What presents itself directly to perception, feeling, or thought.
- **Interpretation:** Assigning meaning beyond the direct experience; relating it to a worldview (metaphysics).

12.2 Three Worldviews (Interpretive Frameworks)

1. Religious & Spiritual

[S6]

Core Belief: Consciousness can exist ****independently**** of the body (e.g., life after death).

- **Religious:** Authority comes from **without** (scripture, institution).
- **Spiritual:** Authority comes from **within** the individual experience.

2. Materialist

[S7]

Core Belief: The body (brain) ****creates**** consciousness.

- Implies ****Eternal Oblivion**** (no consciousness after death).
- Psychedelic experiences are understood as purely brain-generated.

3. Agnostic (The Scientific Stance)

[S8-9]

Core Belief: It is unknowable in principle whether consciousness is independent of the body.

- **Falsification (Karl Popper):** A hypothesis must be testable/falsifiable to be scientific.
- **The Logic:** We cannot die and return to report the truth. Thus, neither Spiritualism nor Materialism is falsifiable.
- **Conclusion:** Agnosticism is the most rigorous scientific approach.

12.3 Historical & Theoretical Frameworks

Historical Use:

[S11]

- **Ancient:** Soma (India), Kykeon (Greece).
- **Indigenous:** Psilocybin (Aztec), Peyote (NAC), Ayahuasca (Amazon).
- **Evidence:** 1,000-year-old ritual bundle found with DMT and Harmine.

Concept: The Unbounded Self (Bede Griffiths)

[S17, 20]

- Ego dissolution does **not** necessitate the loss of personal being.
- An "intact" or "residual" self remains, bridging the Eastern idea of ****Union**** with the Western idea of ****Preservation of Self****.

Neutral Monism Model

[S21]

Based on the work of Huston Smith and Bede Griffiths:

- **Apex:** Spirit (Pure/Divine Consciousness).
- **Left Arm:** Mind (Contents of consciousness).
- **Right Arm:** Matter.
- **Idea:** Mind and Matter are both expressions of the same fundamental substrate (Spirit).

12.4 Terminology: Describing the Experience

Why new terms? Words like "Religious" or "Spiritual" carry interpretive baggage (metaphysics). To remain scientific, we use **Phenomenological Terms** that describe the *felt experience* rather than its meaning. [S26]

1. Immanent**Focus: Within the Created World**

Unbinding from the ego to connect with **nature, people, or the cosmos**.

Key: The connection remains *here*, in the manifest reality.

2. Transcendent**Focus: Beyond the Created World**

Unbinding from the ego into a realm **beyond** physical reality (e.g., geometric worlds, the "Void", "lessness").

Key: The connection is *elsewhere*, beyond time and space.