# The Calculus of the Subject: A Unified Theory of Lacanian Topology, Cybernetic Psychometrics, and the Non-Linear Dynamics of Discourse

## 1. Introduction: The Geometrization of the Psyche

The history of psychological theory is bifurcated by a profound epistemological schism. On one bank stands the Galilean tradition of **Psychometrics**, exemplified by the Five-Factor Model (Big Five) and the cybernetic theories of personality espoused by researchers such as Colin DeYoung and public intellectuals like Jordan Peterson. This tradition posits the human subject as a measurable entity, a cluster of stable traits—Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism—that can be quantified, statistically analyzed, and mapped onto a Cartesian "board" of personality. Here, the subject is continuous, predictable, and defined by the regulation of **entropy**.

On the opposite bank stands the structuralist and post-structuralist tradition of **Lacanian Psychoanalysis**. For Jacques Lacan, the subject is not an object of measurement but an effect of the signifier—a discontinuity, a void, or a "cut" in the Real. Lacan famously declared that "mathemes are not measurement," rejecting the metric quantification of the ego in favor of **Topology**—the study of surfaces, knots, and holes that retain their structural integrity under deformation. For Lacan, the subject ($$) is a variable in a logic of signifiers, not a statistical data point.

This report proposes a radical synthesis: a **Calculus of the Subject** that integrates the regulatory parameters of cybernetic personality theory with the topological structuralism of Lacan. By treating personality traits as the "initial conditions" and "control parameters" of a dynamical system, and by applying **differential equations** and **catastrophe theory** to the flow of conversation, we can construct a rigorous mathematical model of human subjectivity. This model aligns the "board" of the Big Five with Lacan’s **Four Discourses**, interprets the "Dark Factor" of personality through the lens of **jouissance**, and formalizes the "dialectics" of conversation as a trajectory through a non-linear phase space.

## 2. The Cybernetic Architecture of the Self: Entropy and the Big Five

To bridge the gap between the measurable trait and the elusive subject, we must first reground the Big Five in physics and information theory. The most robust theoretical framework for this is **Cybernetic Big Five Theory (CB5T)**, which redefines personality traits not as mere descriptors but as parameters of evolved cybernetic mechanisms designed to manage information and pursue goals.1

### 2.1 The Thermodynamic Basis of Personality: Psychological Entropy

The fundamental problem of any biological or cognitive system is the management of **Entropy**. In thermodynamics, entropy is a measure of disorder; in information theory (Shannon entropy), it measures the uncertainty of a signal. Jordan Peterson, drawing on the work of Hirsh, Mar, and DeYoung, posits that the psychological equivalent of entropy is **Anxiety**.2

**Psychological Entropy** is defined as the experience of conflicting perceptual and behavioral affordances. When an organism encounters a situation where the path forward is unclear—where the internal map fails to predict the territory—entropy rises. The brain, functioning as a "prediction machine," attempts to minimize this free energy.

The relationship between personality and entropy can be formalized in the utility function of behavior. The classical utility function $U(g)$ is modified to include an entropic term:

$$U(g) = U(\hat{x}) + \beta$$

Here, $\beta$ represents the entropic component, which decomposes into $\chi N$, where $N$ is the quantity of psychological entropy (uncertainty/complexity) and $\chi$ is the subject's **preference for entropy**.

This coefficient $\chi$ is the mathematical formalization of the trait **Openness/Intellect**.

* **High Openness ($\chi > 0$):** The subject possesses a dopaminergic system (specifically the salience network) that treats information—even uncertain or chaotic information—as an incentive reward.3 They are "entropy-philic," driven to explore the unknown to transform it into the known.
* **High Neuroticism ($\chi < 0$):** The subject possesses a hyper-sensitive error-detection system. For them, prediction error signals existential threat. They are "entropy-phobic," seeking to minimize $N$ at all costs.

### 2.2 The "Board" as a Cybernetic Phase Space

Jordan Peterson’s "UnderstandMyself" report visualizes the personality as a "board" of sliders, representing the ten aspects of the Big Five (two aspects per trait). While popularly viewed as a static profile, this "board" is conceptually a **Phase Space definition** for the dynamical system of the self.4 It sets the "gain parameters" for the differential equations that govern behavior.

Table 1 maps these traits to their cybernetic functions and entropic roles.

| **Big Five Trait** | **Aspects** | **Cybernetic Function** | **Entropic Role** | **Systemic Effect** |
| --- | --- | --- | --- | --- |
| **Neuroticism** | *Withdrawal* | Error Sensitivity (Passive) | **Entropy Monitor** | Triggers retreat when $H > Threshold$. |
|  | *Volatility* | Error Reactivity (Active) | **Entropy Amplification** | Triggers defense/fight response to uncertainty. |
| **Conscientiousness** | *Industriousness* | Goal Prioritization | **Entropy Reduction (Active)** | Work converts Chaos into Order. |
|  | *Orderliness* | Boundary Maintenance | **Entropy Exclusion** | Disgust/purity keeps the system closed to noise. |
| **Extraversion** | *Enthusiasm* | Reward Prediction | **Energy Input** | Drives approach behavior ($+\Delta E$). |
|  | *Assertiveness* | Social Dominance | **Social Ordering** | Imposes ego-structure on the group. |
| **Agreeableness** | *Compassion* | Empathic Resonance | **Social Entropy Damping** | Absorbs conflict to maintain bond. |
|  | *Politeness* | Norm Compliance | **Rule Adherence** | Prevents social error through inhibition. |
| **Openness** | *Intellect* | Semantic Processing | **Entropy Resolution** | Converts abstract chaos into semantic order. |
|  | *Openness* | Aesthetic Engagement | **Entropy Immersion** | Engages with perceptual chaos for experience. |

The "Board" as a Vector Field:

Mathematically, the "board" defines the attractor landscape of the subject.

* A subject with **High Conscientiousness / Low Openness** operates in a **Fixed Point Attractor**. They aggressively minimize entropy, creating a life of rigid routine ("Order"). Their system is stable but brittle; a massive infusion of entropy (trauma) can cause catastrophic failure because they lack the plasticity to adapt.
* A subject with **High Openness / Low Conscientiousness** operates in a **Chaotic Attractor** (or Strange Attractor). They constantly ingest novelty, keeping their internal entropy high. This maximizes information processing but minimizes goal completion ("Chaos").

### 2.3 The Geometry of Order and Chaos

Peterson’s narrative dichotomy of "Order and Chaos" is not a metaphysical dualism but a cybernetic necessity described by **Self-Organized Criticality**.5

* **Order:** The domain where $P(Error) \approx 0$.
* **Chaos:** The domain where $P(Error) \to 1$.
* **The Zone of Proximal Development (Meaning):** The boundary layer.

The "Heroic" trajectory, in Petersonian calculus, is an optimality algorithm. It describes a trajectory $T(t)$ that oscillates across the boundary of Order and Chaos.

$$\frac{d(Knowledge)}{dt} = f(Chaos) - f(Anxiety)$$

The subject must expose themselves to enough Chaos to update their map (learning) but not so much that the error signal (Anxiety/Neuroticism) overwhelms the system and causes a collapse of the goal hierarchy.

## 3. The Topological Calculus: Lacan’s Structural Algebra

While psychometrics measures the *parameters* of the ego, Lacanian psychoanalysis formalizes the *logic* of the subject ($). Lacan argues that the subject is not a sphere (a consistent unity) but a **Topological Object** defined by a lack.

### 3.1 Topology vs. Metric: The Geometry of the Void

Lacan critiques the "exact sciences" for relying on measurement, which assumes a stable object. The subject of the unconscious, however, is an "effect of the signifier"—it appears only as a fading, a gap, or a discontinuity. To model this, Lacan utilizes **Topology**, specifically the geometry of surfaces like the **Torus**, the **Möbius Strip**, and the **Klein Bottle**.7

* **The Torus:** Lacan uses the torus to model the relationship between **Demand** and **Desire**.
  + **Demand** is the repetitive cycle of articulating needs ("I want this," "I want that"). Geometrically, this corresponds to the circles winding around the *body* of the torus.
  + **Desire** is the central *void* or hole of the torus. No matter how many times one circles the body (satisfying demands), one never enters the central void. Desire is the "calculus of the hole"—it is structurally generated by the loops of demand but remains topologically distinct from them.
  + **Implication for Psychometrics:** The Big Five measures the "texture" of the torus’s surface (the style of Demand). It cannot measure Desire, which is the topology of the void itself.
* **The Möbius Strip:** This surface has only one side and one edge. It models the **Extimacy** of the subject—the fact that the "internal" unconscious is continuous with the "external" Other. There is no deep inside; the subject is a surface effect.

### 3.2 The Rotational Calculus of the Four Discourses

Lacan’s theory of the **Four Discourses** acts as a "rotational calculus" of social bonds. It is a formal algebraic system where four terms rotate through four positions.8

**The Elements:**

* **$S\_1$ (Master Signifier):** The anchoring point, the command, the identity.
* **$S\_2$ (Knowledge):** The system, the bureaucracy, the network of signifiers.
* **$$ (The Barred Subject):** The divided, anxious subject; the entropy of the system.
* **$a$ (Objet petit a):** The surplus enjoyment, the cause of desire, the "remainder" of the dialectic.

The Positions:

$$\frac{\text{Agent}}{\text{Truth}} \to \frac{\text{Other}}{\text{Product}}$$

By aligning these discourses with the **DISC** personality model (Dominance, Influence, Steadiness, Conscientiousness), we can construct a "Rosetta Stone" linking Lacanian structure with behavioral traits.

#### 1. The Master’s Discourse (**$S\_1 \to S\_2$**) **$\approx$** Dominance (D)

* **Structure:** The Agent is $S\_1$ (Master). He commands $S\_2$ (Knowledge/Slave) to produce results ($a$). The truth of his division ($$) is hidden/repressed.
* **DISC Alignment:** **Dominance (D)**. The "D" personality is assertive, results-oriented, and decisive. They occupy the position of the Master Signifier ("Just do it"). They repress vulnerability ($$) and instrumentalize knowledge ($S\_2$) to extract value.
* **Entropic State:** Low Entropy. The Master imposes rigid order to foreclose the anxiety of the Real.

#### 2. The University Discourse (**$S\_2 \to a$**) **$\approx$** Conscientiousness (C)

* **Structure:** Knowledge ($S\_2$) is the Agent. It addresses the raw object ($a$) to transform it into a subject ($$). The truth is the hidden Master ($S\_1$)—the dogma underlying the knowledge.
* **DISC Alignment:** **Conscientiousness (C)**. The "C" personality relies on accuracy, rules, and systems. They do not speak as "I" (Master) but as the voice of the System ($S\_2$). "The data suggests..." This discourse attempts to suture the lack with total knowledge (Encyclopedism).
* **Entropic State:** Regulated Entropy. Bureaucracy functions to metabolize entropy through endless categorization.

#### 3. The Hysteric’s Discourse ($ \to S\_1$) **$\approx$** Influence (I)

* **Structure:** The Divided Subject ($$) is the Agent. She interrogates the Master ($S\_1$) to produce Knowledge ($S\_2$). The truth is the object $a$ (she wants to be the cause of desire).
* **DISC Alignment:** **Influence (I)**. The "I" personality is expressive, people-oriented, and seeks validation. They perform their division/lack ("Look at me!") to provoke a response from the Other. They are the agents of **Innovation** because they refuse to be satisfied by the Master's answers.
* **Entropic State:** High Entropy. The Hysteric introduces "noise" (questioning) into the system, preventing the Master’s order from becoming stagnant.

#### 4. The Analyst’s Discourse ($a \to $) **$\approx$** Steadiness (S)

* **Structure:** The Object ($a$) is the Agent. It addresses the Subject ($$), forcing it to produce its own Signifiers ($S\_1$).
* **DISC Alignment:** **Steadiness (S)**. The "S" personality is supportive, a good listener, and passive. In the clinic, the Analyst occupies the position of the "dummy" or "trash"—the silent screen ($a$) that causes the analysand to speak. They do not impose order; they allow the subject’s own order to emerge.
* **Entropic State:** Entropy Catalyst. By refusing to provide "answers" (Order), the Analyst forces the subject to confront their own entropy.

### 3.3 The Dark Factor (D) and Transgressive Jouissance

Modern psychometrics identifies the **D-Factor** (Dark Factor) as the core of the Dark Triad (Psychopathy, Narcissism, Machiavellianism). D is defined as the tendency to maximize individual utility at the expense of others.10

Lacanian theory provides the **structural logic** for this trait: **Perversion**.

* **The Neurotic:** Sacrifices their *jouissance* (enjoyment) to the Law ($S\_1$) to maintain the social bond.
* **The Pervert:** Disavows the Law. They position themselves as the **Instrument of the Other’s Jouissance**.11
* **The Calculus of D:** The D-factor individual treats the Other not as a subject ($$) but as an object ($a$) to be consumed. Mathematically, this is an attempt to close the gap of desire—to fill the hole in the Torus—by force.
* **Entropy:** The Dark personality acts as an **Entropy Pump**. They export entropy (chaos/pain) into the environment to maintain their own rigid internal stability.

## 4. The Mathematics of Conversation: Differential Equations and Catastrophe

Having defined the "statical" structures (Board/Topology), we must now model the **Kinematics** of conversation. How do these subjects interact in real-time? A conversation is a non-linear dynamical system characterized by feedback loops, hysteresis, and phase transitions.

### 4.1 The Differential Equations of Dyadic Interaction

John Gottman, alongside mathematicians like James Murray, developed a system of **Coupled Non-Linear Difference Equations** to model the flow of affect in conversation.12 These equations express the state of a conversation at time $t+1$ based on the state at $t$.

Let $W\_t$ be the emotional state of Speaker A (e.g., Wife) and $H\_t$ be the state of Speaker B (e.g., Husband).

$$W\_{t+1} = I\_W(W\_t) + R\_{HW}(H\_t) + A$$

$$H\_{t+1} = I\_H(H\_t) + R\_{WH}(W\_t) + B$$

**The Parameters:**

1. **Inertia ($I\_W$):** The Autoregressive term. $W\_{t+1} = r\_1 W\_t$. This measures emotional rigidity.
   * *Psychometric Link:* High Neuroticism correlates with high negative inertia (once negative, it takes significant energy to return to zero). High Conscientiousness correlates with high regulatory inertia (damping factor).
2. **Uninfluenced Set Point ($A, B$):** The constant term. The "resting state" of the interaction.
   * *Psychometric Link:* Determined by Extraversion (positive affect) and Agreeableness (relational warmth).
3. **Influence Function ($R\_{HW}$):** The Coupling term. How much does $H$ affect $W$?
   * This function is **Non-Linear**. It is often a **Bilinear** or **Sigmoidal** function.
   * *Thresholds:* A subject may ignore negativity until it crosses a critical threshold ($H\_{crit}$), at which point their reaction spikes.

The Phase Portrait:

The solutions to these equations generate a Phase Space (a graphical map of all possible states).

* **Attractors:** Stable points where the conversation "settles." A secure conversation has an attractor in the Positive/Positive quadrant. A conflict spiral has an attractor in the Negative/Negative quadrant.
* **Nullclines:** The lines where $\frac{dW}{dt} = 0$. The intersection of nullclines defines the fixed points.

### 4.2 Catastrophe Theory: Modeling the "Topic Shift" and "Scansion"

Standard calculus models continuous change. However, conversations are marked by **Discontinuities**: sudden realizations, abrupt topic shifts, or explosions of rage. To model this, we require **Catastrophe Theory** (René Thom).14

The **Cusp Catastrophe** model is particularly applicable to the "dialectics" of conversation. It models a system with one state variable and two control parameters.

**Variables:**

* **State Variable ($z$):** The "Conversational Flow" or "Consensus."
* **Control Parameter $\alpha$ (Normal Factor):** **Information/Logic**. The linear accumulation of facts ($S\_2$).
* **Control Parameter $\beta$ (Splitting Factor):** **Emotional Tension/Entropy** (The Real/Anxiety).

The Potential Function:

$$V(z) = \frac{1}{4}z^4 - \frac{1}{2}\beta z^2 - \alpha z$$

**The Dynamics of the Cusp:**

1. **Low Tension ($\beta$ is low):** As Information ($\alpha$) changes, the conversation ($z$) shifts smoothly. Arguments are logical and linear.
2. **High Tension ($\beta$ is high):** The system enters the **Bifurcation Set**. The potential surface folds over.
   * The conversation enters a state of **Bistability**. It can be simultaneously "Polite" (Upper Sheet) and "Hostile" (Lower Sheet).
   * **The Catastrophe:** As Information ($\alpha$) pushes the system to the edge of the fold, the state ($z$) suddenly drops from the Upper to the Lower sheet.
   * *Phenomenology:* This is the "Topic Shift" or the "Outburst." A trivial comment triggers a massive structural collapse in the discourse because the underlying entropy ($\beta$) was critical.

### 4.3 The Lacanian "Cut" (Scansion) as a Mathematical Operator

In Lacanian practice, the analyst uses **Scansion** (the variable-length session) to punctuate the discourse. The session does not end by the clock (chronological time) but by the logic of the signifier (logical time).17

Mathematically, Scansion acts as a **Dirac Delta Function** ($\delta(t)$) applied to the flow of speech.

* **The Chain:** The analysand produces a stream of signifiers ($S\_1 \to S\_2 \to S\_3 \dots$). Meaning is **Retroactive** ($Nachträglichkeit$); the sentence is not understood until it ends.
* **The Cut:** The analyst cuts the session at a moment of **Unstable Equilibrium** (High Entropy).
* **The Operator:** The Cut stops the "sliding" of the signified under the signifier. It collapses the wave function of meaning, forcing the subject to retroactively fix the meaning of their speech.
* **Dialectical Result:** This forces a **Reorganization**. The subject cannot continue the same Limit Cycle (neurotic repetition). They must produce a new $S\_1$ to account for the Cut.

## 5. The Dialectics ("Dfatexitc") of Conversation

The user’s query regarding "dfatexitc" (Dialectics) necessitates a formal distinction between **Hegelian** and **Lacanian** dialectics in the context of our calculus.9

### 5.1 Hegelian Dialectics: The Spiral to Synthesis

* **Formula:** $Thesis \to Antithesis \to Synthesis$.
* **Phase Space:** This is a trajectory towards a **Stable Fixed Point**. The system oscillates but converges.
* **Conversation:** In a "productive" debate, contradictions are sublated (Aufheben) into a higher truth. The entropy of the system decreases over time as integration increases.

### 5.2 Lacanian Dialectics: The Asymptotic Remainder

* **Formula:** $S\_1 \to S\_2 \to a$ (Remainder).
* **Phase Space:** This is a trajectory towards a **Strange Attractor**. There is **No Synthesis**. The "Sexual Relationship does not exist" means there is no equation that resolves the two subjects into unity.
* **Conversation:** The dialogue produces a **Remainder** (Object $a$)—something that cannot be said, a misunderstanding that persists. The "Cut" does not solve the problem; it isolates the Real.
* **Implication:** A "Lacanian" conversation (analysis) does not aim for agreement (homeostasis) but for the isolation of the core non-linearity (the Sinthome) that organizes the subject's chaos.

## 6. Synthesis: The Physics of Subjectivity

By integrating these domains, we arrive at a unified "Physics of Subjectivity."

1. **The Subject** is a topological surface (Torus) structured by a lack.
2. **Personality** (Big Five) is the set of **Elastic Moduli** of this surface—how rigid (Conscientious) or flexible (Open) it is in response to the pressure of the Real (Entropy).
3. **Conversation** is the **Coupled Oscillation** of two such surfaces.
   * **Resonance:** When the natural frequencies (traits) match, energy is exchanged efficiently (Rapport).
   * **Dissonance/Catastrophe:** When a rigid surface (High C) encounters a chaotic driver (High O), or when high tension ($\beta$) creates a bifurcation, the system undergoes catastrophic phase transitions (Conflict).

Actionable Conclusion for the "Board":

To master the "Board" is not just to know one's traits, but to understand one's Phase Space.

* **High Neuroticism:** You inhabit a landscape with deep "wells" (negative attractors). You need high "Activation Energy" (Extraversion/Will) to escape them.
* **High Openness:** You inhabit a flat, chaotic landscape. You need artificial "Walls" (Conscientious habits) to prevent entropy death (dissipation).
* **The Hero's Journey:** The algorithmic process of voluntarily moving from a Fixed Point (Order) into the Chaotic Region to extract information, and returning to establish a new, more complex Fixed Point.

The "Calculus of the Subject" is thus the mathematics of navigating the void, using the coordinates of personality to steer the vessel of the ego through the turbulent flows of the Real.

### Table 2: The Rosetta Stone of Personality Models

| **Lacanian Discourse** | **DISC Profile** | **Big Five Cluster** | **Mathematical Attractor** | **Logic of the Bond** |
| --- | --- | --- | --- | --- |
| **Master** ($S\_1 \to S\_2$) | **Dominance (D)** | **High E, Low A** | **Fixed Point** (Stability) | **Command**: Imposes $S\_1$ to quell entropy. |
| **University** ($S\_2 \to a$) | **Conscientiousness (C)** | **High C, Low O** | **Limit Cycle** (Repetition) | **Bureaucracy**: Uses $S\_2$ to suture the lack. |
| **Hysteric** ($ \to S\_1$) | **Influence (I)** | **High E, High N, High O** | **Chaotic / Strange** | **Interrogation**: Generates entropy to demand Truth. |
| **Analyst** ($a \to $) | **Steadiness (S)** | **High A, Low E, Low N** | **Basin of Attraction** | **Evocation**: Embodies the void to cause speech. |

### Table 3: Differential Parameters of Conversation

| **Parameter** | **Variable** | **Definition** | **Psychometric Correlate** |
| --- | --- | --- | --- |
| **State** | $x(t)$ | Current Affect / Consensus | Mood |
| **Inertia** | $r$ | Resistance to change | **Neuroticism** (Negative Inertia) |
| **Set Point** | $A$ | Equilibrium state | **Agreeableness / Extraversion** |
| **Influence** | $I(y)$ | Coupling strength | **Empathy** (Agreeableness) |
| **Normal Factor** | $\alpha$ | Information content | **Logic / Content** |
| **Splitting Factor** | $\beta$ | System Tension / Entropy | **Anxiety / The Real** |
| **The Cut** | $\delta(t)$ | Discontinuous Operator | **Scansion / Intervention** |

#### Works cited

1. Cybernetic Big Five Theory - Scott Barry Kaufman, accessed November 27, 2025, <https://scottbarrykaufman.com/wp-content/uploads/2014/08/DeYoung-2014-CB5T-JRP.pdf>
2. Psychological Entropy: A Framework for Understanding Uncertainty-Related Anxiety - Jacob Hirsh, accessed November 27, 2025, <http://www.jacobhirsh.com/Hirsh,%20Mar,%20&%20Peterson%20-%20Psychological%20Entropy.pdf>
3. The neuromodulator of exploration: A unifying theory of the role of dopamine in personality, accessed November 27, 2025, <https://www.researchgate.net/publication/259111728_The_Neuromodulator_of_Exploration_A_Unifying_Theory_of_the_Role_of_Dopamine_in_Personality>
4. Understand Myself - The Big Five Aspects Scale | PDF - Scribd, accessed November 27, 2025, <https://www.scribd.com/document/629406119/Understand-Myself-The-Big-Five-Aspects-Scale>
5. Psycoloquy 10(077): Maps of Meaning: the Architecture of Belief, accessed November 27, 2025, <https://www.cogsci.ecs.soton.ac.uk/cgi/psyc/newpsy?10.077>
6. Chaos theory - Wikipedia, accessed November 27, 2025, <https://en.wikipedia.org/wiki/Chaos_theory>
7. Why Topology Matters in Psychoanalysis – Part II - LACANONLINE.COM, accessed November 27, 2025, <https://www.lacanonline.com/2015/03/why-topology-matters-in-psychoanalysis-part-ii/>
8. The Symptom 10 » Spring 2009 – “Universalism versus ... - Lacan.com, accessed November 27, 2025, <https://www.lacan.com/symptom10a/>
9. Lacan and the Structure of Discourse Bernard Nominé - Informit, accessed November 27, 2025, <https://search.informit.org/doi/pdf/10.3316/informit.028850507311848?download=true>
10. The Dark Factor of Personality: D, accessed November 27, 2025, <https://www.darkfactor.org/>
11. Human Relations: Counting the cost of the Toxic Triad of Personality By Michael Mulvihill “Concerns should drive us into acti, accessed November 27, 2025, <https://www.nplg.gov.ge/uploads/the_lecture_Human_Relations.pdf>
12. Qualitative Dynamic Mathematical Modeling of Marital Interaction, accessed November 27, 2025, <https://www.johngottman.net/wp-content/uploads/2011/05/The-mathematics-of-marital-conflict-qualitative-dynamic-mathematical-modeling-of-marital-interaction.pdf>
13. Dynamic Mathematical Nonlinear Modeling of Newly wed Marital Interaction, accessed November 27, 2025, <https://www.johngottman.net/wp-content/uploads/2011/05/The-Mathematics-of-Marital-Conflict-Dynamic-Mathematical-Nonlinear-Modeling-of-Newlywed-Marital-Interaction.pdf>
14. Theory and Practice of Catastrophe - PAC, accessed November 27, 2025, <https://pac.org.mx/uploads/sitac/pdf/IN-La-cat%C3%A1strofe-SitacIX-memorias_EDUARDO-ABAROA.pdf>
15. Conformality of 7 WH-questions to 7 Elementary Catastrophes: an exploration of potential psychosocial implications - Laetus in Praesens, accessed November 27, 2025, <https://www.laetusinpraesens.org/musings/catastro.php>
16. A Catastrophe Theory Model for Research Training in Higher Education: A Complex Systems Approach to Educational Change - ResearchGate, accessed November 27, 2025, <https://www.researchgate.net/publication/391248605_A_Catastrophe_Theory_Model_for_Research_Training_in_Higher_Education_A_Complex_Systems_Approach_to_Educational_Change>
17. To resume again...12 - Lacan.com, accessed November 27, 2025, <https://www.lacan.com/frameXII0.htm>
18. View of Lacanian Psychoanalysis and the Logic of the Cut | Sanglap, accessed November 27, 2025, <https://sanglap-journal.in/index.php/sanglap/article/view/93/154>
19. (PDF) Lacan's Dialectics of Knowledge Production: The Four Discourses as a Detour to Hegel - ResearchGate, accessed November 27, 2025, <https://www.researchgate.net/publication/358493952_Lacan's_Dialectics_of_Knowledge_Production_The_Four_Discourses_as_a_Detour_to_Hegel>