

Structural Psychopathology of Childhood Trauma: Operator Fusion and Clinical Detangling

Balanced, formal, and directly descriptive of the mechanism + intervention.

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Preregistration:

Pilot study:

*) We welcome feedback on the preregistration and study design, and invite researchers who are interested in peer-reviewing the system to contact us. We also encourage scholars across all disciplines to conduct their own independent research on any aspect of the Core Emotion Framework. Author assumes no societal or substantial gains from this framework, just for public and academic service.

Abstract

Childhood trauma produces enduring psychological rigidity by forcing the emotional system into maladaptive configurations known as operator fusions. Within the Core Emotion Framework (CEF), these fusions represent structural failures in the Head, Heart, and Gut centers, where normally independent functional operators become pathologically locked to manage overwhelming threat. This paper presents a structural psychopathology of trauma, mapping how early adversity generates recurrent patterns such as Sensing–Accepting shame loops, Constricting–Boosting anxiety entanglements, and Calculating–Arranging outsourcing in obsessive–compulsive presentations. The model explains trauma symptoms through the dynamics of “The Wheel,” a self-reinforcing cycle in which suppressed core emotions drive compensatory reactions that further entrench fusion architecture. Clinical resolution is achieved through the CEF Detangling Protocol, a seven-step somatic-cognitive method that restores operator independence using 0–10 modulation, zeroing, experiential isolation, and cycling-based hemispheric rebalancing. The paper outlines the developmental stages of detangling—intellectual differentiation, experiential isolation, and flexible re-synthesis—and demonstrates how these processes reestablish operator agility, emotional flexibility, and adaptive agency. By indexing evidence-based treatments (CBT, DBT, ACT, EMDR, ERP) to specific operator deficits, the CEF provides a mechanism-based clinical framework for precision psychotherapy and a unified structural account of trauma resolution.

Keywords:

- Structural Psychopathology
- Childhood Trauma
- Operator Fusion
- Emotional Rigidity
- The Wheel (Trauma Cycle)
- Core Emotion Framework (CEF)
- Head–Heart–Gut Centers
- Sensing–Accepting Fusion
- Constricting–Boosting Entanglement
- Accepting Failure (Depressive Decoupling)
- Detangling Protocol

- 0–10 Modulation / Zeroing
 - Experiential Isolation
 - Operator Agility
 - Somatic Signatures
 - Counting and Cycling Methods
 - Bilateral Stimulation
 - Constructed Emotion Theory
 - Allostatic Prediction
 - Precision Psychotherapy
 - Structural Reframe of EBTs
 - EMDR as Sensing Mechanism
 - CBT as Calculating Mechanism
 - ACT as Accepting Mechanism
 - DBT as Constricting Mechanism
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Theoretical Foundation: The Architecture of the Human Operating System

The Core Emotion Framework posits that human experience is not an aggregation of discrete, hardwired emotional circuits but is instead a constructed outcome generated by the interaction of ten primal operators¹². These operators are organized into a tripartite structure comprising three functional centers: the Head (Cognition), the Heart (Feeling), and the Gut (Action and Embodied Response)³⁻⁹. This structural organization seeks to unify representational, affective-regulatory, and somatic-inferential processes within a single functional ontology¹².

Each center operates across three primary modes of engagement: Outgoing (Initiation and external movement), Reflecting (Internal analysis and pause), and Balancing (Commitment and maintenance)^{3,9,11}. The synergy of these operators forms a “Human Operating System” (Human OS) that manages allostatic predictions—the brain’s central mission to regulate the body’s internal state in anticipation of environmental demands¹².

The Decalogue of Functional Operators

The ten operators of the CEF serve as the irreducible building blocks of personality and character³⁻⁹. When these operators function independently, the individual possesses “Operator Agility,” allowing for fluid transitions between cognitive, affective, and conative states³⁻⁹.

| Functional Center | Outgoing Mode (+) | Reflecting Mode (-) | Balancing Mode (0) |
|-------------------|---|--|--|
| Head (Cognition) | Sensing: Scanning raw environmental cues; subconscious clearing of interference. | Calculating: Analytical data processing; objective rational viewing through a logical lens. | Deciding: Establishing anchors and commitments based on balanced, nuanced data. |
| Heart (Feeling) | Expanding: Inclusion; increasing emotional scope; cultivation of empathy and optimism. | Constricting: Mindful pausing; boundary setting; reframing negativity into actionable limits. | Achieving: Performance drive; scaling action to build self-esteem and resolve egoistic stuckness. |
| Gut (Action) | Arranging: Prioritization; organizational structure; creation of adaptive order. | Appreciating: Reflective satisfaction; enjoyment; dopamine-mediated self-reward. | Boosting: Grounding; focused diligence; energy for performance and assertive drive. |
| Integrative Core | --- | --- | Accepting: Surrender to reality; psychological flexibility; manifestation of change. |

In this model, the operators are not merely feelings but “actions the emotional system performs”^{3,9,11}. Each possesses a somatic signature, a directional movement, and a functional purpose^{3,9,11}. Sensing, for instance, originates in the eyes and forehead and moves upward and forward, while Constricting acts as a “definitive” capacity for discipline and discernment^{3,9,11}.

The Constructivist Nature of Emotional Experience

The CEF aligns with the theory of constructed emotion, which argues that discrete emotional states like “fear” or “anger” are not innate but are constructed

moment-to-moment from core affect (valence and arousal) and conceptual knowledge¹². In the context of psychopathology, the framework suggests that suffering arises from a failure of adaptive conceptualization¹². When the brain's internal model becomes rigid due to trauma, it applies outdated or harmful concepts to neutral bodily states, resulting in a state of "Emotional Rigidity" where the psyche becomes stuck in maladaptive patterns of wanting and reacting¹².

The Etiology of Operator Fusion: Mapping Childhood Trauma

Childhood trauma acts as a profound structural disruptor, forcing the psychological architecture to adapt through the creation of defensive fusions. These fusions occur when two or more operators, which should remain fluid and independent, become pathologically locked to manage overwhelming distress.³⁻⁹

The Mechanism of The Wheel and Systemic Failure

The self-perpetuating nature of trauma-induced symptoms is captured by the concept of "The Wheel". This model describes a cycle where a deep-seated anxiety, generated by the suppression of non-dominant core emotions during traumatic events, is compulsively countered by a dysfunctional "solution"—a rigid reaction that reinforces the very operator fusions it seeks to mitigate.³⁻⁹

For instance, a child residing in an unpredictable or abusive environment may suppress the "Expanding" operator (vulnerability and connection) to protect the self. This suppression creates internal tension and anxiety. To resolve this, the system may compulsively activate "Sensing" (scanning for threat) and "Constricting" (forming rigid boundaries). Over time, these two operators fuse into a permanent state of hyper-vigilance, locking the individual into a "rigid dictator" archetype that lacks the capacity for adaptation.³⁻⁹

Pathological Fusion Architectures across Syndromes

The CEF allows for the precise mapping of these fusions across various psychiatric presentations. By identifying the specific operators involved in a fusion, the clinician can move beyond descriptive labels to understand the structural "fingerprint" of the disorder.³⁻⁹

| Disorder | Core Pathological Fusion/Failure | Behavioral Manifestation |
|-------------|------------------------------------|--|
| BPD (Shame) | Sensing-Accepting Fusion | Hyper-awareness of negative perception (Sensing) fused with submissive yielding (Accepting). |
| MDD | Accepting Failure | Systemic decoupling of affective valuation from motivational initiative; inability to internalize self-worth. |
| OCD | Calculating-Arranging Outsourcing | Cognitive distress (Calculating failure/IU) is outsourced to rigid action (Arranging) to manufacture certainty. |
| Anxiety | Constricting-Boosting Entanglement | Mindful pausing (Constricting) is locked with effortful drive (Boosting), preventing a shift to flexibility (Accepting). |
| GPAP | Compliance Fusion | Over-activation of rule-following (Sensing/Calculating) fused with suppression of agency (Achieving/Boosting). |
| NPD (Overt) | Achieving-Expanding Fusion | Mastery (Achieving) and inclusion (Expanding) are fused to maintain an inflated ego and grandiosity. |

In the case of Borderline Personality Disorder (BPD), the pervasive feelings of shame rooted in childhood trauma are deconstructed as a specific composite trait formed by the rigid fusion of Sensing and Accepting. Here, the individual is not merely "feeling" shame; they are structurally locked in a state of hyper-aware submission to negative perception. This fusion prevents the "Optimized Functioning" that the framework aims to restore, as the system is incapable of utilizing other operators like "Deciding" or "Boosting" without the interference of the shame-fusion.³⁻⁹

The Systemic Decoupling in Depressive Disorders

Major Depressive Disorder (MDD) is conceptualized as a fundamental disorder of structural inertia, primarily driven by the failure of the "Receptive Manifestation" capacity or "Accepting" operator in the Gut center^{3,6,9,11}.

Trauma often compromises this capacity, leading to "systemic decoupling" where the system's ability to assign positive value (valuation) is severed from its ability to mobilize effort (initiative)^{3,6,9,11}. This maps precisely to the neuroscientific distinction between "liking" (hedonic capacity) and "wanting" (dopaminergic drive)¹². When the Accepting operator fails, the individual can no longer assign subjective value to rewards, which in turn inhibits the "Assertive Drive" (Boosting) and "Strategic Order" (Arranging), resulting in the anhedonia and psychomotor retardation characteristic of the disorder^{3,6,9,11}.

The Resolution of Trauma: The Detangling Protocol

To resolve the emotional rigidity caused by trauma, the CEF proposes the "Detangling" protocol—a technical, strength-based intervention designed to restore the "orchestra" of the mind by teaching the individual to conduct their operators separately^{3,6,9,11}.

The 7-Step Clinical Procedure for Detangling

The practical execution of detangling involves a rigorous process of emotional modulation using the 0-10 scalar intensity methodology^{3,9,11}. This methodology allows individuals to quantify and adjust the intensity of their internal states with "surgical precision"^{3,9,11}.

1. **Identify Fusion:** The clinician and client define the specific operators currently pathologically locked (e.g., Sensing and Calculating in ADHD or Sensing and Accepting in BPD-shame)^{3,9,11}.
2. **Centering:** The client establishes a grounded baseline state to stabilize the emotional field before activation^{3,9,11}.
3. **Activate Operator A:** The client is guided to target the first operator in the fusion (e.g., Sensing)^{3,9,11}.
4. **Intensify (0→10):** The client consciously amplifies the intensity of Operator A from zero (absolute rest) to ten (maximal activation)^{3,9,11}.
5. **Hold:** The client maintains the high-intensity state to achieve "experiential isolation," proving to the brain that the operator can function without its fused partner^{3,9,11}.
6. **Quiet (10→0):** This is the "Zeroing" stage. The client intentionally reduces the intensity to absolute zero, re-calibrating the cognitive module and breaking its reflexive association with the other operator^{3,9,11}.

7. **Repeat for Operator B:** The same process of activation and zeroing is applied to the second operator in the fusion^{3,9,11}.

By mastering these seven steps, the individual regains the ability to control their internal resources independently. This provides a sense of "cognitive control" and agency that traditional regulation techniques often lack, effectively breaking the pathological loop of the trauma-induced Wheel^{3-9,11}.

Developmental Stages of the Detangling Resolution

The resolution of trauma through detangling is not instantaneous but moves through three distinct developmental stages that build upon one another to achieve total structural reintegration^{3,9,11}.

1. Intellectual Differentiation

In the first stage, the client focuses on conceptual restructuring. This involves identifying the specific "ingredients" of their emotional suffering. Instead of identifying as "anxious," the client learns to intellectually differentiate between the "Constricting" (pausing/fear) and "Boosting" (drive/effort) that are locked together. This differentiation is the first step toward breaking the "egoistic stuckness" that trauma creates^{3,9,11}.

2. Experiential Isolation

The second stage involves the direct somatic practice of the operators in isolation. The individual uses "drills" to track specific somatic signatures. In sensory processing disorders or trauma-related sensory sensitivity, the individual might practice "Sensing" an irritant at a high intensity while consciously keeping their "Constricting" operator at a Level 0. This stage focuses on achieving "operator independence," where the individual can experience one power without automatically triggering the other^{3,9,11}.

3. Flexible Re-synthesis

The final stage of detangling is "Operator Agility." Once the operators have been freed from their pathological fusions, the individual regains the capacity to adaptively combine them in response to situational demands. For example, the individual can now combine "Sensing" (perception) and "Calculating" (analysis) for objective problem-

solving without the "perplexity" of a trauma trigger. This represents the restoration of moment-to-moment emotional flexibility and the achievement of "Affective Actualization"^{3,9,11}.

Somatic Mechanisms for Structural Change

The Core Emotion Framework incorporates principles of embodied cognition, recognizing that emotional processing is intrinsically linked to physical states. To facilitate detangling, the framework utilizes specific somatic exercises designed to alter the physiological inputs the brain uses to construct emotion^{3,9,11}.

The 0-10 Scalar Methodology and Zeroing

The 0-10 scale serves as the "Human OS" interface for emotional modulation. A rating of 0 represents absolute rest, while 10 represents maximal activation. "Zeroing"—the reduction of an operator to absolute zero—is considered particularly crucial for trauma survivors. By proving that they can move an intensity to zero, individuals gain the cognitive agency required to realize they are no longer "trapped" in their trauma^{3,9,11}.

Counting Exercises: Training Metacognitive Awareness

The Counting exercise involves the deliberate triggering and intensification of a core emotion followed by its voluntary release. Its primary function is to train metacognitive awareness and voluntary control over emotional intensity—a key component of self-regulation. This exercise is particularly effective for resolving "Constricting" failures; by training the capacity to execute a pause between emotional input and behavioral output, the individual builds the structural resilience needed to override traumatic reactions^{3,9,11}.

Cycling Exercises: Hemispheric Rebalancing

Cycling links imaginative or physical rhythmic movement to the three processing modes:

- **Clockwise (CW) Cycling:** Generates the Outgoing mode (Sensing, Expanding, Arranging).
- **Counter-Clockwise (CCW) Cycling:** Generates the Reflecting mode (Calculating, Constricting, Appreciating).

- **Juggling Motion:** Generates the Balancing mode (Deciding, Achieving, Boosting, Accepting)^{3,9,11}.

The alternating nature of these movements functions as a form of bilateral stimulation, influencing hemispheric processing in a manner similar to EMDR. By using "Sensing" CW cycling to scan for cues and then "Calculating" CCW cycling to analyze them, the individual can "clear cache"—removing the interference between sensory memory and the negative constriction caused by trauma^{3,9,11}.

Pathophysiological Comparison: The Structural Lock and Key

The CEF distinguishes itself from traditional models by providing a structural explanation for why certain disorders share symptoms but require different interventions. This is achieved through the "Entanglement Hypothesis," which posits that dysfunction occurs when the Constricting operator (Heart center) becomes locked with a pole of the Gut center (Boosting or Accepting)^{3,9,11}.

| Pathological State | Structural Entanglement | Consequence |
|--------------------|--|---|
| Rigid Dictator | Constricting locked with Boosting | Compulsive, controlling efforts; inability to adapt or surrender. |
| Victim Mentality | Constricting locked with Accepting | Surrender to reality without committed action; passivity. |
| OCD Ritual | Calculating failure; Arranging hyper-activation | Rigid external order created to solve internal cognitive chaos. |
| BPD Instability | Sensing overload; Accepting submissive fusion | Hyper-sensitivity to perceived threat; reactive external instability. |

In the "Rigid Dictator" archetype, the Constricting operator fails to execute its adaptive role as a mindful pause. Because it is entangled with Boosting (drive), the system is unable to shift into the counterbalance of Accepting (surrender). Resolution requires strengthening the Constricting operator's adaptive function (potentially through pure mindfulness) to "unlock" the system and restore the fluid movement between Boosting

and Accepting^{3,9,11}.

Therapeutic Integration: The CEF as a Meta-Framework

The CEF serves as a powerful meta-therapeutic indexing tool, mapping identified operator deficits to the mechanisms of evidence-based treatments (EBTs). This systematic approach allows for "Precision Medicine" in psychotherapy, where treatment selection is driven by the structural requirement of the client^{3,9,11}.

Structural Equivalence with Established Modalities

The CEF reframes established modalities as targeted interventions for specific operator failures. Cognitive Behavioral Therapy (CBT^{1,13}) is indexed to the Calculating operator (cognitive restructuring), while Acceptance and Commitment Therapy (ACT^{2,14}) is indexed to the Accepting operator (psychological flexibility)^{3,9,11}.

| Modality | CEF Target | Structural Reframe |
|-----------------------|--------------------|--|
| EMDR ^{16,17} | Sensing | Facilitates "clearing cache" and reevaluating traumatic sensory memory. |
| CBT ^{1,13} | Calculating | Restructures maladaptive cognitions by promoting objective, analytical analysis. |
| ACT ^{2,14} | Accepting | Promotes non-judgmental acknowledgment of internal experiences; reduces avoidance. |
| ERP ¹⁸ | Arranging/Boosting | Inhibits the maladaptive action loop to disrupt negative reinforcement cycles. |
| DBT ¹⁵ | Constricting | Strengthens the mindful pause and dialectical balance between push and surrender. |

The "Sensing" Operator and Trauma Processing

The framework identifies Sensing as the primary operator responsible for "clearing interference" between sensory memory and negative emotional constriction. Clients presenting with intrusive, unprocessed trauma that resists rational reframing are

diagnosed with a "Sensing deficit". The structural logic dictates that for these clients, EMDR^{16,17} (the Sensing mechanism) should be prioritized over lengthy cognitive work (Calculating) to clear the physiological block first^{3,9,11}.

Synthetic Affect and the Engineering of Empathy

The Core Emotion Framework extends its utility beyond human psychopathology into the realm of artificial intelligence and synthetic affect. By deconstructing human emotion into ten functional operators, the framework provides a design blueprint for engineering empathetic reactivity in conversational agents^{3,9,11}.

Emotion Reconstruction and the Solipsism Threshold

In synthetic agents, "Emotion Reconstruction" (ER) is the process of synthesizing the ten operators into a response perceived as emotionally intelligent. This is governed by formulas that weigh each operator against user input. However, if an agent's affirmative operators (Expanding and Boosting) are not counterbalanced by objective operators (Calculating and Deciding), the interaction can drift into "Emotional Solipsism"^{3,9,11}.

Emotional solipsism is a state where the AI creates a frictionless affirmation loop for the user, reinforcing unhealthy attachments and eroding the capacity for authentic human reciprocity. To prevent this, the CEF-informed design utilizes the "Deciding" operator to introduce "constructive friction"—intentional boundaries that clarify the agent's artificial nature and promote the user's engagement with real-world human ties. This bridge between human psychopathology and AI engineering allows for a quantifiable model of "parasocial attachment," identifying how the weighting of internal operators leads to emergent interactional phenomena^{3,9,11}.

Future Directions: Empirical Validation and Open Science

The scholarly integrity of the CEF is reinforced by its commitment to Open Science principles, ensuring transparent documentation and permanent accessibility through digital object identifiers (DOIs) on platforms like Zenodo and the Open Science Framework (OSF)^{3,9,11}.

The empirical validation strategy for the CEF is phased and rigorous. The immediate priority is the validation of the CEF Scale (Phase 1 protocol confirmed for 2025), which aims to confirm the construct definition and multi-level factor structure of the ten operators. Subsequent research must test the central claim that restored fluid balance in the Boosting-Accepting dialectic leads to a measurable reduction in anxiety rigidity. Furthermore, the proposed "CEF Indexing" system must be tested in clinical trials to verify whether selecting modalities based on identified operator deficits leads to superior patient outcomes compared to traditional treatment selection methods^{3,9,11}.

Conclusion: Toward a Mechanism-Based Resilience

The Core Emotion Framework offers a sophisticated, structural-constructivist model for resolving the emotional rigidity rooted in childhood trauma. By deconstructing the psyche into ten universal operators across the Head, Heart, and Gut centers, the framework provides a precise, mechanism-based language for mapping pathological fusions. The identification of "The Wheel" and the "Entanglement Hypothesis" explains how trauma maintains these fusions, while the detangling protocol offers a structured clinical pathway for their resolution^{3,9,11}.

Through the seven steps of detangling and the three developmental stages of differentiation, isolation, and re-synthesis, individuals can regain agency over their internal architecture. Somatic tools like Counting and Cycling facilitate this transition, offering a non-cognitive route to emotional flexibility. Ultimately, by indexing established evidence-based therapies to specific operator deficits, the CEF serves as a powerful integrative system that enhances precision and reduces bias in mental health treatment. As research continues to validate these structural mechanisms, the CEF stands as a promising architecture for advancing both human flourishing and the ethical development of synthetic affect^{3,9,11}.

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