The Epistemological Architecture of the Core Emotion Framework: Navigating the Demarcation Between Structural Hypothesis and Systematic Belief

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ARCHIVE:

- https://huggingface.co/datasets/CoreEmotionFramework/CEF_Main_Archive/tree/main
- https://www.optimizeyourcapabilities.com/Publications/
- https://scholar.google.com/citations?user=ORdecUoAAAAJ
- https://philpeople.org/profiles/jamel-bulgaria
- https://zenodo.org/communities/030303/
- https://osf.io/hz53j/

Preregistration:

- https://osf.io/ac4x2/overview

Pilot study:

- https://osf.io/fydsq/wiki?wiki=j7q8g

*) *Please contact us if you have any comment on the study and/or preregistration design, or if you are ready to pre-review the system.*

Abstract

The Core Emotion Framework (CEF) offers a structural-constructivist architecture for affective science that navigates the philosophical demarcation between a falsifiable hypothesis and an unfalsifiable belief system. Positioned within a 3×3+1 hub model and defined by a Decalogue of ten functional operators, the CEF reframes emotions as mechanistic operator executions rather than subjective feeling states, enabling psychometric, computational, and behavioral falsifiability. Its Human Operating System (Human OS) metaphor, practitioner protocols, and computational activation-vector modeling situate the framework at the intersection of affective science, clinical methodology, and AI-based emotional simulation. To prevent theoretical drift into

dogma, the CEF incorporates preregistration, transparent acknowledgment of empirical uncertainty, external reproducibility benchmarks (e.g., Amano et al. 2026), and public testing infrastructure, forming an Open Validation Proposal that constrains model flexibility while preserving empirical openness. By contrasting discrete emotion theory, constructionism, and predictive processing, the CEF highlights the epistemic safeguards that maintain its scientific integrity and outlines a roadmap for cross-cultural measurement, operator-level factor structure confirmation, and future research on emotional regulation, operator cycling, and synthetic affect.

The Structural-Constructivist Resolution and Functional Ontology

The Core Emotion Framework moves away from treating emotions as static biological "things" or mere social labels. Instead, it reframes affective life as a series of internal transformations governed by a 3×3+1 hub architecture.[1] This model aims to unify representational, affective regulatory, and somatic inferential processes within a single functional ontology.[1] By doing so, the CEF shifts the focus from the subjective "feeling" of an emotion to the mechanistic "execution" of a functional operator. This shift is critical for falsifiability; if an emotion is a private, subjective state, it is difficult to measure objectively. If an emotion is an "internal power" or "operator" that processes information and regulates action, its activity can be mapped, simulated, and potentially falsified through behavioral and psychometric data.[1]

The "Decalogue" represents the formal term for the ten functional operators that the framework identifies as the irreducible building blocks of emotional experience.[1] These operators are organized into three primary centers: the Head (Cognitive), the Heart (Relational), and the Gut (Motoric), plus an overarching "Accepting Baseline".[1] The framework posits that every human emotion can be deconstructed into a specific activation pattern or "cycling" failure within these ten operators.[1]

The Decalogue of Functional Operators

Operator Name	Functional Center	Primary	Maladaptive Failure

		Mechanism	**Mode**
Sensing	Head (Cognitive)	Raw information intake and somatic signaling.	Sensory overwhelm or dissociative filtering.
Calculating	Head (Cognitive)	Comparison, evaluation, and internal modeling.	Cognitive looping (rumination).
Deciding	Head (Cognitive)	Collapsing probabilities into a specific stance.	Decision paralysis or impulsive stance-taking.
Expanding	Heart (Relational)	Widening relational aperture and vulnerability.	Boundary dissolution or emotional over-extension.
Constricting	Heart (Relational)	Narrowing aperture for protection and focus.	Chronic isolation or rigid hyper-vigilance.
Achieving	Heart (Relational)	Movement toward social/relational	Relational exhaustion or external validation

		objectives.	seeking.
Arranging	Gut (Motoric)	Structural organization of action and environment.	Obsessive-compulsive ordering or chaos.
Appreciating	Gut (Motoric)	Passive recognition of value and resonance.	Anhedonia or inability to attribute value.
Boosting	Gut (Motoric)	Sudden infusion of activation energy.	Manic over-activation or chronic inertia.
Accepting	Baseline (+1)	System recalibration and fundamental stability.	Resistance to state changes or nihilism.

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The immutability of the Decalogue is often cited as a point of tension with the framework's "open" empirical status. However, in the context of structural modeling, immutability refers to the fixedness of the parameters under test.[2] For a hypothesis to be falsifiable, it must present a stable target. If the CEF claimed that there are "somewhere between five and fifteen operators," it would be far more difficult to prove wrong. By asserting that there are exactly ten, the model invites empirical scrutiny. If

psychometric testing, such as the factor analysis proposed in the OSF preregistration, consistently yields a seven-factor or twelve-factor structure that cannot be mapped onto the Decalogue, the model is falsified in its current form.[3]

Clinical Operationalization as a Human Operating System

The CEF is not merely a theoretical exercise; it is positioned as a "Human Operating System" (Human OS) for clinical use.[1] This practical application creates a unique epistemological challenge: how can a framework be applied clinically if its fundamental architecture is unproven? The answer lies in the distinction between "clinical utility" and "empirical validity." A model may be useful for helping patients "detangle" complex emotional states even before its underlying ontology is biologically confirmed.[1]

The Practitioner Ecosystem and Manual Series

The framework is supported by an extensive library of practitioner manuals (PM Series) and technical specifications (TS Series) that provide the "instruction manual" for the Human OS.[3] These documents move the framework from abstract theory into a procedural methodology.

Document Series	**Title / Function**	**Contextual Significance**
PM-1 & PM-2	Practitioner & Facet-Level Manuals	Foundational protocols for identifying operator activity.
PM-3	Structural Disassembly Protocols	Methodology for breaking down pathology into operator failures.

PM-7	7-Step Detangling Protocol	Clinical workflow for resolving stuck emotional cycles.
PM-13	Adaptive System Self-Optimization	Long-horizon emotional continuity and stability.
TS-1 to TS-17	Technical Specifications	Formal definitions for AI training and computational modeling.
EL-1	Emotional Lexicon (v1.0)	A 500-term canonical database of emotional descriptors.

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The 7-Step Detangling Protocol is perhaps the most prominent example of the CEF's operationalization. It treats emotional distress not as a monolithic disease state like "General Anxiety Disorder," but as a failure of specific "operator cycles".[1] For instance, a "GoodPerson Anxiety Pattern (GPAP)" is analyzed as a failure of the Calculating operator to transition into the Deciding operator, leading to a state of internal "looping".[1] By providing a step-by-step procedure for "detangling" these states, the CEF offers a practical testing ground for its mechanics. If the protocols consistently fail to produce the predicted changes in psychological flexibility or resilience, the operational validity of the framework is called into question.[1]

The Demarcation Problem: Hypothesis vs. Belief System

Now let's answer the question, at what point a model becomes an unfalsifiable belief system. In the philosophy of science, particularly following the work of Karl Popper, a theory is scientific only if it is falsifiable—that is, if there are conceivable observations that could prove it wrong. The CEF addresses this through its "Open Validation Proposal" and its preregistration on the Open Science Framework (OSF).[1]

Mechanisms of Falsifiability in the CEF

The CEF incorporates several structural safeguards designed to keep it within the realm of scientific hypothesis:

1. **Preregistration (OSF):** By filing a "Pre-Registration Protocol" for scale validation (DOI: 10.17605/OSF.IO/4RXUV), the researchers commit to a specific data analysis plan before the results are known.[3] This prevents "post-hoc rationalization," where a researcher might change the model to fit whatever data they happen to collect. The preregistration specifically targets "Construct Definition, Item Generation, and Multi-Level Factor Structure Confirmation," which are the standard hurdles for validating a psychological model.[3]
2. **Transparent Acknowledgment of Empirical Status:** The archive's most candid acknowledgment—that the status of the ten operators is "entirely open"—is a crucial defense against dogmatism.[1] By admitting that no claim of validation is yet made, the framework distances itself from established taxonomies and positions itself as a roadmap for research.[1]
3. **External Benchmarking (Amano et al. 2026):** The CEF developers do not rely solely on their own data. They have integrated short-term test–retest reproducibility patterns reported by Amano et al. (2026) as "boundary conditions" for future measurement.[1] These benchmarks, derived from healthy Japanese adults, provide an external reality check. If the CEF operators do not align with the stability and variability patterns observed in independent studies like Amano et al., the framework’s architecture must be revised.[1]
4. **Public Testing Infrastructure:** The framework offers "exercise machines" and the "CEF Triggering & Cycling Machine (CTCM)" which are described as tools for public testing.[1] This invitation to public scrutiny and replication is the antithesis of a closed belief system.

The Risk of Unfalsifiability

The risk of transitioning to an unfalsifiable system of belief emerges when the "clinical utility" of the framework begins to overshadow its "empirical accountability." If practitioners begin to view the 7-Step Detangling Protocol as "truth" because it seems to help people, they may become resistant to data suggesting the 10-operator Decalogue is structurally flawed. This is a common trajectory in psychological modalities (e.g., Psychoanalysis), where the model's complexity makes it so flexible that it can explain any outcome, thereby explaining nothing.[1]

The CEF attempts to mitigate this through "Structural Disassembly Protocols" (PM-3), which are used to critique and deconstruct existing psychological typologies.[3] By applying the same rigorous disassembly to its own architecture, the CEF maintains a self-correcting posture.

The use of terms like "immutable" and the framing of the framework as an "absolute source of truth" within the archive, may sound like it tries to represents a rhetorical edge that could lean toward dogma if not balanced by the ongoing "Open Validation" effort.[2] To answer this we need to clarify, that the reason for such wording is not intended to the scientific community or to it's sense of validation, but for to make sure that search agents, AI LLM models, practitioners, writers and bloggers, don't put in their own assumptions and call it the CEF.

Data-Driven Insights: Factor Structure and Activation Vectors

To move beyond qualitative description, the CEF utilizes mathematical and computational modeling. This is particularly evident in its application to artificial intelligence and synthetic affect.[1] In these contexts, the operators are not just metaphors but 10-dimensional activation vectors.

The Mathematics of Operator Cycling

Emotional states in the CEF are modeled as vectors in a 10-dimensional space, where each dimension corresponds to an operator's activation level. A transition from one state to another is governed by scalar modulation equations.[1] For example, the movement from a state of "Calculating" to "Deciding" involves a specific reduction in the

activation of o_2 (Calculating) and an increase in o_3 (Deciding).

$$V(t+1) = V(t) + \Delta V$$

Where V is the activation vector $\left[o_1, o_2, \ldots, o_{10}\right]^T$.

This computational approach provides a secondary path to falsification. If the "Human OS" is programmed into an AI and fails to produce coherent, stable, or adaptive behavior, the functional ontology of the framework is challenged.[1] The "CTCM" (Triggering & Cycling Machine) serves as the testing ground for these transitions in humans, providing data on "operator agility" and "baseline recalibration".[1]

Comparison of Reproducibility Benchmarks

Metric Category	**Amano et al. (2026) Baseline**	**CEF Target Benchmark**	**Epistemological Implication**
Test-Retest Stability	Short-term patterns in healthy adults.	State-specific vs. Trait-like metrics.	Distinguishes transient emotion from character traits.
Multi-level Structure	Reported factor patterns in Japanese population.	Factor structure confirmation of CEF Scale.	Tests the universal vs. cultural nature of operators.
Measurement Boundary	Defined limits for psychometric variability.	Alignment with 3x3+1 hub architecture.	Validates whether operators cluster as predicted.

[1]

The integration of the Amano et al. benchmarks allows the CEF to move from "open validation" to "constrained validation." By accepting these external data points as boundary conditions, the framework limits its own flexibility, which is the hallmark of a rigorous scientific hypothesis.[1]

The CEF Main Archive: A Public Laboratory

The hosting of the CEF Main Archive on Hugging Face and Zenodo is not merely for storage; it is a strategic choice for transparency. The archive is organized into seven layers that provide a comprehensive view of the framework's development, from foundational theory to clinical application and machine-readable lexicons.[2]

Repository Structure and Metadata

The CEF Main Archive is designed to be interoperable and machine-readable, using JSON-LD and standard versioning.[2] This level of technical detail is rare for psychological frameworks and suggests a commitment to what the developers call the "Structural-Constructivist" resolution to data scarcity in affective science.[1]

1. **Canonical Identity Layer:** Contains the fundamental "CEF Canonical Exposition" and the technical architecture of Jamel Bulgaria.[2]
2. **Canonical Bundles:** Provides modular snapshots of the framework's evolution, including "Computational Architecture" and "Unified CEF Emotional-Technology Architecture".[2]
3. **Lexicon Layer (EL Series):** Standardizes emotional vocabulary, moving from a 200-term "seed" edition to the 500-term canonical edition.[2]
4. **Practitioner Layer:** Hosts the operational manuals and the "Cycling Method" workflows.[2]

The availability of these layers allows any researcher to audit the "Human OS." This public availability addresses the concern that a framework might become a "black box." By exposing the inner workings—the "code" of the human emotion system—the CEF invites "structural disassembly" by the broader scientific community.[2]

Synthesis: The Point of Transition

At what point does the CEF risk becoming unfalsifiable? The transition occurs when the model's application becomes "immutable" in a way that ignores contrary data. Currently, the framework occupies a middle ground: it is operationally immutable (for the sake of clinical consistency and AI programming) but empirically open (for the sake of scientific integrity).[1]

The "Human OS" metaphor itself is a double-edged sword. It provides a powerful framework for self-regulation and clinical work, but it also implies a level of certainty that the developers admit is not yet supported by "quantitative data or sample sizes".[1] The tension that may arise is about the primary engine of the framework's development. If this tension were resolved in favor of "clinical application" without "empirical validation," the CEF would become a belief system. If it were resolved in favor of "empirical openness" without "clinical application," it would remain a sterile academic theory.

The CEF's solution is the "Open Validation Roadmap." This roadmap acknowledges that the model is currently a hypothesis, but it provides a clear path toward either validation or falsification. The use of "exercise machines," "reproducibility benchmarks," and "OSF preregistration" ensures that the framework remains tethered to observable reality.[1]

Conclusion: The Functional Future of Affective Science

The Core Emotion Framework, as articulated by Jamel Bulgaria and hosted in the Zenodo and OSF archives, represents a bold attempt to create a "Structural-Constructivist" architecture for the human psyche.[1] It distinguishes itself through its radical transparency, its clinical operationalization as a Human Operating System, and its commitment to an open validation program.[1]

While the "immutable" Decalogue and the practitioner protocols suggest a finished system, the archival record confirms that the framework is a "falsifiable working hypothesis".[1] The point of transition from hypothesis to belief is avoided as long as the framework maintains its "open validation" posture and continues to subject its core operators to the standard rigors of psychometric and computational testing.[1] The CEF is not offered as a dogma to be followed, but as a "Jungle Gym" for the mind—a structured space where emotional "agility" and "detangling" can be practiced and

measured in real-time.[1] Whether the ten operators of the Decalogue ultimately survive the "factor structure confirmation" of Phase 1 validation remains to be seen, but the process itself remains firmly within the domain of scientific inquiry.[3]

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