

# The Structural-Constructivist Status of the Core Emotion Framework: Boundary Conditions and the Circumplex Alternative

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## ARCHIVE:

- [https://huggingface.co/datasets/CoreEmotionFramework/CEF\\_Main\\_Archive/tree/main](https://huggingface.co/datasets/CoreEmotionFramework/CEF_Main_Archive/tree/main)
- <https://www.optimizeyourcapabilities.com/Publications/>
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- <https://zenodo.org/communities/030303/>
- <https://osf.io/hz53j/>

## Preregistration:

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

## Pilot study:

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

*\*) We welcome feedback on the preregistration and study design, and invite researchers who are interested in pre-reviewing the system to contact us.*

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## Abstract

Affective science remains divided between discrete emotion theories and psychological constructionism, a century-long conflict over whether emotions are biologically fixed categories or emergent conceptual events. The Core Emotion Framework (CEF) proposes a structural-constructivist alternative: a 10-operator functional ontology organized within a 3×3+1 hub architecture. This paper evaluates whether Amano et al. (2026)—a study of short-term test–retest reproducibility in AI-derived facial valence—can serve as a scientifically valid boundary condition for the CEF. I argue that while the Amano dataset provides a robust cross-cultural benchmark for digital valence

estimation, its statistical properties (e.g., the neutral ICC of 0.05 driven by restricted score variability) do not constitute direct evidence for operator-level mechanisms. I further compare the CEF's 10-dimensional activation-vector model with the parsimony of Russell's valence–arousal circumplex, showing that the latter explains the Amano reproducibility patterns with fewer assumptions. The CEF remains a falsifiable working hypothesis, but its empirical justification depends on forthcoming factor-analytic tests and demonstrations of incremental validity over two-dimensional models. I conclude that Amano et al. provides a legitimate starting point for constrained validation, but not a validation of the Decalogue itself, and that the CEF's scientific status hinges on whether its operator architecture yields predictive advantages in clinical, computational, and cross-cultural contexts.

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## **The Epistemological Architecture of the Core Emotion Framework**

The Core Emotion Framework is situated at the intersection of affective science, clinical methodology, and artificial intelligence simulation, moving away from treating emotions as static biological entities or mere social labels.<sup>1</sup> Instead, it posits a functional ontology where emotions are mechanistic executions of functional operators.<sup>1</sup> The architecture is defined by a Decalogue of ten operators organized into three primary functional centers: the Head (Processor), the Heart (Engine), and the Gut (Foundation), supplemented by an overarching Accepting baseline.<sup>1</sup> This  $3 \times 3 + 1$  hub model aims to unify representational, affective-regulatory, and somatic-inferential processes into a single machine-tractable system.<sup>1</sup>

The framework defines operators as the irreducible building blocks of emotional experience, acting as a "Human Operating System" (Human OS) instruction set.<sup>1</sup> The immutability of this Decalogue is central to its claim of scientific falsifiability; by asserting exactly ten operators, the model presents a stable target for psychometric and computational testing.<sup>1</sup> If factor analysis or behavioral probes consistently yield a structure that cannot be mapped onto these ten operators, the framework is considered falsified.<sup>1</sup>

### **The Decalogue of Functional Operators and Center Mapping**

The organization of the operators across functional centers and movement modes provides the structural logic for the framework's mechanics. Each center manages a distinct domain of processing: the Head center regulates informational logic and data modeling; the Heart center governs relational aperture and internal standards; and the Gut center anchors somatic grounding and provides the kinetic momentum required for task execution.<sup>1</sup>

<b>Functional Center</b>	<b>movement Mode: Outgoing</b>	<b>movement Mode: Reflecting</b>	<b>movement Mode: Balancing</b>
<b>Head (Processor)</b>	<b>Sensing:</b> Raw informational intake and signal detection. <sup>1</sup>	<b>Calculating:</b> Algorithmic analysis, comparison, and prediction. <sup>1</sup>	<b>Deciding:</b> Actuator of commitment and resolution. <sup>1</sup>
<b>Heart (Engine)</b>	<b>Expanding:</b> Relational openness and widening aperture. <sup>1</sup>	<b>Constricting:</b> Relational boundary setting and narrowing aperture. <sup>1</sup>	<b>Achieving:</b> Pursuit of internal excellence and standards. <sup>1</sup>
<b>Gut (Foundation)</b>	<b>Arranging:</b> Structural order and organization of environment. <sup>1</sup>	<b>Appreciating:</b> Factual recognition of value and resonance. <sup>1</sup>	<b>Boosting:</b> Surge energy and activation for movement. <sup>1</sup>

In addition to these nine, the framework posits a tenth baseline anchor—**Accepting**—which serves as the primary recalibration mechanism.<sup>1</sup> This operator stands apart from the grid to reduce "control gain" for discrepancies the system cannot resolve through other operators, allowing for state integration and preventing operator fusion or chronic stagnation.<sup>1</sup>

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## Assessing the Validity of Amano et al. (2026) as a

# Boundary Condition

A significant portion of the CEF's empirical roadmap relies on the integration of external reproducibility benchmarks, specifically those reported by Amano et al. (2026).<sup>1</sup> The Amano study assessed the short-term test-retest reproducibility of AI-derived facial expression valence in a sample of forty healthy Japanese adults.<sup>1</sup> The researchers utilized the Kokoro Sensor, a proprietary system grounded in Ekman's theory of basic emotions and the Facial Action Coding System (FACS), to estimate valence on a continuous scale from -100 to 100.<sup>1</sup>

## The Statistical Foundation of the Amano Study

The Amano et al. study reported intraclass correlation coefficients (ICC 3,1) across positive, negative, and neutral facial expression conditions over a 30-minute interval.<sup>1</sup> The results indicated a wide variance in reproducibility across these conditions, which the CEF author adopts as "boundary conditions" for the framework's architecture.<sup>1</sup>

Valence Condition	Reported ICC (3,1) Value	CEF lens Interpretation	Structural Justification
Positive	0.82 (Good)	Expanding/Achieving	High clarity and intensity of facial cues associated with happiness. <sup>1</sup>
Negative	0.61 (Moderate)	Constricting/Arranging	Reflects subtle and variable boundary-setting or protective shifts. <sup>1</sup>
Neutral	0.05 (Poor)	Sensing	Low-noise informational intake role; ICC attenuated by low score dispersion. <sup>1</sup>

<b>Integrated Dataset</b>	0.94 (Excellent)	<b>Accepting</b>	Represents high trait-like stability of the overall Human OS. <sup>1</sup>
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The scientific validity of using these findings as a primary boundary condition for the CEF requires scrutiny. The author argues that Establishing reproducibility in an East Asian population—where facial expressions are often more subtle and negative cues are frequently suppressed—provides a robust cross-cultural foundation for the model.<sup>1</sup> The high integrated ICC of 0.94 is particularly emphasized as proof of a stable individual baseline, which the CEF maps to the Accepting operator's efficiency in recalibrating the system after a surge.<sup>1</sup>

However, a fundamental gap exists between the "AI-derived valence" measured by Amano et al. and the "functional operators" hypothesized by the CEF. The Amano study was designed to evaluate the reproducibility of valence estimates in digital environments, not to validate a 10-operator functional ontology.<sup>1</sup> The poor ICC of the neutral condition (0.05) reflects a statistical artifact caused by restricted score variability (within-subject SD = 8.22), rather than evidence of a high-variance Sensing operator.<sup>1</sup> This indicates that absolute agreement remained stable even while the relative correlation was low.<sup>1</sup> Mapping this statistical artifact to a functional "Sensing baseline" involves a leap of theoretical inference that lacks direct empirical support from the study itself.<sup>1</sup>

Furthermore, the 30-minute retest interval in the Amano study is noted by the researchers as insufficient for making claims about enduring personality-level affect.<sup>1</sup> The CEF interprets the integrated ICC (0.94) as evidence of 'Accepting baseline efficiency,' yet the Amano study's 30-minute retest interval was not designed to assess enduring structural traits, limiting the validity of this inference.<sup>1</sup> While the Amano findings are "compatible" with the CEF architecture, they serve more as a "real-world check" on AI performance in specific populations than as a direct validation of the framework's underlying operators.<sup>1</sup>

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## Parsimony and the Russell Circumplex Model

A critical evaluation of the CEF must compare its complexity against more established, parsimonious models. Russell's circumplex model of affect posits that all affective states arise from cognitive interpretations of core neural sensations produced by two independent systems: valence and arousal.<sup>2</sup>

### The Core Affect Hypothesis

Russell defines core affect as the most elementary consciously accessible feelings, such as pleasure, tension, or lethargy, which are always present but not necessarily directed at an object.<sup>3</sup> This model is considered highly parsimonious because it uses only two dimensions to map a vast array of emotional experiences.<sup>4</sup> Proponents of the circumplex model argue that basic emotion theories fail to account for the overlapping nature of affective states, whereas the dimensional approach provides a robust framework for neuroimaging and developmental research.<sup>2</sup>

The reproducibility data from the Amano et al. study can be interpreted quite effectively through the lens of Russell's circumplex without the need for a 10-operator Decalogue. The high stability of positive valence (ICC 0.82) and the integrated stability of individual patterns (ICC 0.94) are consistent with the idea that core affect dimensions are relatively stable over short periods.<sup>3</sup> The variability in negative valence (ICC 0.61) aligns with research suggesting that negative affect categories are often more heterogeneous and perceptually variable than positive ones.<sup>1</sup> In this view, the Amano data simply reflects the reproducibility of core affect dimensions as estimated by an AI system trained on Ekman-style categories.<sup>1</sup>

### Parsimony vs. Granularity: A Comparative Model Analysis

The CEF acknowledges that its claim of exactly ten operators is a "parsimony hypothesis" rather than an empirical finding.<sup>1</sup> However, when compared to Russell's 2D model, the CEF is significantly less parsimonious, requiring a 10-dimensional activation vector space to model emotional states.<sup>1</sup>

Model Component	Russell's Circumplex	Core Emotion Framework
Dimensionality	Two Dimensions (Valence, Arousal). <sup>2</sup>	Ten Dimensions (Decalogue of Operators). <sup>1</sup>

<b>Building Blocks</b>	Continuous affective space. <sup>4</sup>	Irreducible functional instructions. <sup>1</sup>
<b>Explanation of State</b>	Location on a 2D graph. <sup>6</sup>	Scalar modulation across three centers. <sup>1</sup>
<b>Psychopathology</b>	Restricted range of affect. <sup>8</sup>	Operator fusion or silencing (GPAP). <sup>1</sup>
<b>Computational Basis</b>	Vector points in 2D space. <sup>7</sup>	10-dimensional activation vectors ( $\mathbf{V}$ ). <sup>1</sup>

The primary argument for the CEF's added complexity is its ability to model the "mechanistic execution" of emotions.<sup>1</sup> While Russell's model describes *what* an individual feels, the CEF attempts to describe *how* the system transforms signals into action.<sup>1</sup> For instance, a state that Russell would label as "high-arousal, negative-valence" might be deconstructed by the CEF as a failure of the Calculating operator to transition into the Deciding operator, leading to a state of "looping" or rumination.<sup>1</sup> This transition from "subjective feeling" to "mechanistic operator" is claimed to provide superior diagnostic granularity for clinical and institutional debugging.<sup>1</sup>

## The Agency-Yielding Controversy and Structural Integrity

A pivotal challenge to the CEF's claim of providing a new structural language has emerged from within its own research community, specifically regarding the "Agency-Yielding" binary hook.<sup>1</sup> In early developmental stages, the framework utilized these established personality constructs—Agency (self-assertion) and Yielding/Communion (relational connection)—as a foundational polarity to organize the operators.<sup>1</sup>

Analyst Xǔ Chénglǎn identifies this hook as a 'bad choice' because it collapses structurally distinct operators into a single agency–yielding polarity, undermining the independence of the Decalogue and reintroducing the very reductionism the CEF seeks to avoid.<sup>1</sup> The critique argues that mapping the operators onto an Agency-Yielding axis

collapses the 10-operator granularity into a simplistic dualism, thereby reintroducing the very reductionism the CEF was designed to transcend.<sup>1</sup> For example, the reflecting mode of the Heart (Constricting) and the reflecting mode of the Head (Calculating) are functionally distinct; forcing them onto a single agency-yielding axis hides the model's unique architecture.<sup>1</sup>

The resolution reframes Agency and Yielding as emergent properties of Boosting (surge activation) and Accepting (integration and grounding), removing them from the system's organizing architecture and restoring operator independence.<sup>1</sup> Boosting is now defined as the "on-mode" balancer representing surge activation (associated with high agency), while Accepting is the "off-mode" balancer representing integration and grounding (associated with yielding).<sup>1</sup> This shift from a "hook" to a "mechanism" is essential for the CEF's claim to be a "Second Wave" Human OS.<sup>1</sup> If the framework relies on simplistic binaries, it remains a rhetorical synthesis of old ideas; if it maintains the independence of its ten operators, it moves toward a genuine theoretical resolution.<sup>1</sup>

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## Behavioral Support and Pilot Study 3

Preliminary behavioral support for the 10-operator model is provided by Pilot Study 3 ( $N = 39$ ), which explored "Action-Opinion Divergence".<sup>1</sup> Participants were presented with everyday scenarios (overload, conflict, setback) and asked to select their habitual response (Action) and their idealized response (Opinion) from options corresponding to the ten operators.<sup>1</sup>

### Divergence Analysis and Functional Distinctness

The data from the pilot study revealed significant patterns of divergence, suggesting that individuals can distinguish between their reflexive habits and their strategic ideals in terms that align with the CEF's Decalogue.<sup>1</sup>

Scenario	Habitual "Action" Trend	Ideal "Opinion" Trend	Structural Insight
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<b>Too Many Tasks</b>	<b>Constricting:</b> Participants usually act by narrowing or protective measures. <sup>1</sup>	<b>Arranging/Deciding</b> : Participants believe they should organize or commit. <sup>1</sup>	Habit is reductive; ideal is structural/resolute.
<b>Conflict</b>	<b>Deciding/Boosting:</b> Tendency to "push through" or choose a side. <sup>1</sup>	<b>Appreciating/Expanding:</b> Participants believe they should validate others or open up. <sup>1</sup>	Habit is assertive; ideal is relational/softening .
<b>Setback</b>	<b>Calculating/Arranging:</b> Attempting to "fix" or calculate the next step. <sup>1</sup>	<b>Accepting:</b> High frequency of selecting Operator 10 as the ideal. <sup>1</sup>	Habit is corrective; ideal is accepting reality.
<b>Loss / Ending</b>	<b>Constricting/Sensing:</b> Blocking out the ending or pausing to pick up signals. <sup>1</sup>	<b>Accepting/Appreciating:</b> Softening resistance and noticing value. <sup>1</sup>	Habit is defensive; ideal is integrative.

These findings support the framework's claim that "operator agility"—the capacity to flexibly engage the appropriate operator for a given context—is a marker of psychological health.<sup>1</sup> Participants' reflections corroborated this, with one noting, "I learned that what I think I might initially do in a situation isn't necessarily what I should or would do".<sup>1</sup> While the small sample size ( $N = 39$ ) precludes definitive psychometric validation, the consistency of the divergence suggests that the ten operators are distinguishable to human introspection and serve distinct functional roles.<sup>1</sup>

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## Structural Psychopathology and Clinical Operationalization

The most ambitious claim of the CEF is its ability to "detangle" psychological disorders by reframing them as "structural failures" of the Human OS.<sup>1</sup> This approach moves away

from symptom-based clusters toward an "operator-based" analysis.<sup>1</sup>

## The GoodPerson Anxiety Pattern (GPAP)

The GPAP is a working hypothesis that reframes Avoidant Personality Disorder as a structural configuration of operator misalignment.<sup>1</sup> In this pattern, the individual experiences a "fusion" between an overactive **Expanding** operator (Heart Outgoing) and an overactive **Calculating** operator (Head Reflecting).<sup>1</sup> This fusion creates a state where the individual is perpetually scanning relational environments and building models to please others, which in turn silences the **Deciding** operator.<sup>1</sup> The system becomes stuck in a loop of high-arousal relational prediction without ever reaching a commitment to self-boundary or action.<sup>1</sup>

To address these misalignments, the framework offers the "7-Step Detangling Protocol," which helps practitioners identify fused operators and use balancing operators—Boosting or Accepting—to restore agility.<sup>1</sup> For instance, a patient stuck in a Calculating loop might be instructed to engage the Arranging operator to break the impasse through physical structural movement.<sup>1</sup> This clinical utility depends on the theoretical assumption that the operators are indeed separate, calculable units that can be independently modulated.<sup>1</sup>

## Computational Emotion and AI Implementation

The CEF's move toward scientific validity is further strengthened by its focus on computational tractability.<sup>1</sup> The operators are not just metaphors; in artificial intelligence applications, they are modeled as 10-dimensional activation vectors.<sup>1</sup> The framework provides formal definitions for AI training and synthetic affect through the TS-series specifications and the EL-1 emotional lexicon.<sup>1</sup>

Specification Series	Function/Content	Role in AI Engineering
TS-Series	Computational rules and operator algebra. <sup>1</sup>	Establishes mathematical basis for real-time system cycling.

<b>EL-1 Lexicon</b>	500-term canonical database of emotional descriptors. <sup>1</sup>	Provides interface for machine-readable sentiment mapping and geometry.
<b>ECM v3.1/v4.0</b>	Engineering blueprints for emotional cycling machines. <sup>1</sup>	Maps environmental inputs to operator states via 10D activation vectors.
<b>INTIMA Benchmark</b>	Evaluating emotional bonds and boundary maintenance in AI. <sup>1</sup>	Ensures machines can model "Constricting" (boundary) with granularity.

The INTIMA benchmark is particularly significant, as it tests how AI systems handle social reinforcement versus boundary maintenance.<sup>1</sup> The framework identifies risks in current models (like Claude-4 or Gemma-3), which may struggle to "Count Down" social operators in favor of "Counting Up" boundaries, leading to potential emotional overinvestment or instability.<sup>1</sup> This level of technical specification is rare for psychological frameworks and suggests a commitment to rigorous, mechanistic validation.<sup>1</sup>

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## **Institutional Scaling and Global Governance**

The claim that the CEF provides a unified functional ontology is reinforced by its scalability to institutional and global levels.<sup>1</sup> Xǔ Chénglán has reframed the United Nations as an "Institutional Operating System," mapping its agencies and mandates to specific operators.<sup>1</sup> Intuitively, applying a human OS framework to a bureaucratic institution such as the UN risks undermining the CEF's scientific posture more than it supports it.

<b>UN Component</b>	<b>CEF Operator</b>	<b>Functional Mapping and System Failure</b>
<b>UNOOSA Satellites</b>	<b>Sensing</b>	Raw intake of climate and security data; the "scan layer". <sup>1</sup>
<b>Strategic Foresight Tools</b>	<b>Calculating</b>	Scenario modeling and humanitarian predictions; the "what-if cortex". <sup>1</sup>
<b>Security Council</b>	<b>Deciding</b>	The actuator for mandates; frequently "silenced" by geopolitical deadlock. <sup>1</sup>
<b>UN Innovation Network</b>	<b>Arranging</b>	Breaking bureaucratic silos and building infrastructure; "structural movement". <sup>1</sup>
<b>Human Rights Review (UPR)</b>	<b>Appreciating</b>	Recognizing human dignity and rights records; "savoring" value. <sup>1</sup>
<b>Pandemic Fund</b>	<b>Boosting</b>	"Surge authority" for rapid institutional activation and response. <sup>1</sup>

This application highlights the phenomenon of "operator silencing" in global governance.<sup>1</sup> When geopolitical gridlock prevents the UN's "Deciding" operator from functioning, the entire system is relegated to the "Sensing" and "Calculating" layers— modeling crises without the capacity to commit to resolution.<sup>1</sup> This macro-institutional mapping demonstrates the framework's potential as a "debugging tool" for complex multilateral systems, identifying structural impasses that simplistic Agency-Yielding binaries would obscure.<sup>1</sup>

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# The Validity of the Comparison Starting Point: A Critical Evaluation

The author claims that the CEF's integration of the Amano et al. (2026) reproducibility benchmarks makes it a valid starting point for framework comparison.<sup>1</sup> This claim rests on the idea of "constrained validation"—by accepting external data as boundary conditions, the framework limits its own flexibility, which is the hallmark of a rigorous scientific hypothesis.<sup>1</sup>

## Scientific Strengths of the Starting Point

1. **Transparency and Open Science:** The hosting of the CEF archive on Zenodo, Hugging Face, and the Open Science Framework (OSF) ensures radical transparency.<sup>1</sup> The commit to the Transparency and Openness Promotion (TOP) Guidelines and the use of JSON-LD for interoperability are standard-setting for the field.<sup>1</sup>
2. **Falsifiable Targets:** By defining a precise 10-factor structure and organizable hubs, the CEF invites "structural disassembly".<sup>1</sup> The ongoing Phase-1 confirmatory factor analysis (OSF DOI: 10.17605/OSF.IO/AC4X2) will determine if the ten factors actually emerge from the data, providing a clear path to falsification.<sup>1</sup>
3. **Cross-Cultural Robustness:** Using a Japanese sample to establish reproducibility benchmarks addresses a significant gap in affective science, which has historically relied on Western populations with different emotional display rules.<sup>1</sup>

## Scientific Risks and Weaknesses

1. **Theoretical Overfitting:** There is a risk that the "boundary conditions" derived from the Amano study are merely mapped post-hoc to fit the CEF's pre-existing 10-operator model.<sup>1</sup> The very low ICC of the neutral condition (0.05), which the framework calls the "Sensing baseline," is more likely a statistical artifact of the study's design than a functional discovery.<sup>1</sup>
2. **Lack of Comparative Direct Proof:** While the framework claims to resolve the "100-year war," it lacks direct evidence that its operators correspond to distinguishable neural or stable psychological mechanisms.<sup>1</sup> The Pilot Study 3 results are descriptive and preliminary, and they do not establish operator independence.<sup>1</sup>

3. **Demarcation Risk:** The "Human OS" metaphor provides high clinical utility but may imply a level of certainty not yet supported by quantitative data or large sample sizes.<sup>1</sup> If the framework's "immutability" becomes a shield against contrary data, it risks transitioning from a hypothesis to a belief system.<sup>1</sup>

The CEF remains falsifiable under several clear conditions: (1) if confirmatory factor analysis fails to yield ten distinguishable operators; (2) if operators do not demonstrate discriminant validity across contexts; (3) if operator-transition predictions do not outperform simpler valence–arousal models; and (4) if 10-dimensional activation vectors fail to produce stable or coherent behavior in computational implementations. Any of these outcomes would constitute direct evidence against the framework’s structural claims.

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## Comparative Parsimony: Why the Circumplex Model May Still Prevail

From the perspective of classical scientific parsimony, Russell's circumplex model offers a more elegant explanation for the reproducibility data found in the Amano et al. study.<sup>3</sup> This is not surprising, given that the study was rather designed in relevance to the traditional studies, rather than to the emerging one.

### The 2-Factor vs. 10-Factor Debate

The Amano study measured facial valence, a continuous dimension that is a core component of Russell's model.<sup>2</sup> The high integrated stability (ICC 0.94) found in the study suggests that individuals have relatively stable "valence signatures".<sup>1</sup> In a circumplex model, this is simply the stability of a person's core affect coordinates over a short interval.<sup>3</sup> Postulating ten independent operators introduces latent dimensionality that exceeds what the Amano et al. data can justify, given that the reproducibility patterns are fully explainable within a two-dimensional valence–arousal space.<sup>1</sup>

Parsimony Criterion	Russell Circumplex (Winner)	Core Emotion Framework
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<b>Number of Assumptions</b>	Minimal: valence and arousal are sufficient. <sup>2</sup>	High: requires 10 independent functional instructions. <sup>1</sup>
<b>Explanation of Variance</b>	Explains the majority of variance in self-reports and recognition. <sup>5</sup>	Claims higher-resolution modeling but lacks large-scale CFA support. <sup>1</sup>
<b>Neurophysiological Basis</b>	Linked to two fundamental systems (Pleasure, Arousal). <sup>2</sup>	Hypothesizes three centers (Head, Heart, Gut) but lacks MRI proof. <sup>1</sup>
<b>Theoretical Consistency</b>	Consistently explains "in-the-wild" and ambiguous affect. <sup>5</sup>	Risk of "operator drift" or "rhetorical synthesis" without direct proof. <sup>1</sup>

The CEF's counter-argument is that parsimony at the cost of resolution is a "bad choice" in complex environments like AI or clinical psychopathology.<sup>1</sup> While 2D models are good for broad mapping, they fail to explain the "mechanics of being"—how an individual gets "stuck" in a state of calculating without deciding.<sup>1</sup> However, until the CEF can provide "incremental validity" data—proving that its 10-factor model predicts outcomes significantly better than a 2-factor circumplex—the principle of parsimony remains a formidable challenge to its scientific status.<sup>11</sup>

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## Conclusion: The Path Toward Validated Agility

The scientific validity of using Amano et al. (2026) as the primary boundary condition for the Core Emotion Framework is currently at a "Phase 0" status. It provides a necessary and robust cross-cultural real-world benchmark for the AI systems the framework utilizes, but it does not, on its own, validate the functional independence of the ten operators. The integrated ICC of 0.94 provides a powerful empirical anchor for the "Accepting" operator, but this remains an interpretative mapping rather than a direct measurement of system recalibration.

Russell's core affect circumplex model offers a more parsimonious explanation for the reproducibility data, as it requires fewer latent constructs to explain the observed

stability of valence in healthy adults. The CEF's move to a 10-dimensional vector space introduces a high level of theoretical complexity that must be justified through superior predictive power in clinical or high-stakes AI environments.

Nevertheless, the view that the Amano study is a valid starting point for framework comparison is supported by the CEF's commitment to "constrained validation" and radical transparency. By setting explicit reproducibility targets and filing preregistrations for factor-analytic testing, the CEF distinguishes itself from "closed" belief systems. The framework's transition away from reductive binaries (the Agency-Yielding hook) toward functional mechanics (Boosting-Accepting) signals its evolution into a sophisticated structural-constructivist ontology.

Whether the Core Emotion Framework definitively ends the "hundred-year war" between discrete and constructed emotions depends on the upcoming results of its factor-structure confirmation and cross-cultural discrimination studies. Until then, it stands as a highly technical, falsifiable working hypothesis that offers a promising, albeit complex, new language for the integration of affective science, clinical psychology, and affective computing. The "Human OS" approach targets the functional "velocity" of experience, providing a unique roadmap for debugging the individual, institutional, and digital engine of human flourishing.

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