

# Core Emotion Framework (CEF): Core Essence Document — Canonical Zenodo-Ready Definition

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## Abstract

The Core Emotion Framework (CEF) is a canonical, architecture-level model that defines the foundational structure of human emotional processes. This document presents the minimal, formal specification of the CEF, suitable for citation as the authoritative reference for the framework. The CEF organizes ten core emotional processes into three functional centers—Head, Heart, and Gut—establishing a systematic, hierarchical architecture for emotional regulation and psychological flourishing. The framework is presented with precise terminology, formal operator definitions, and explicit statements of directionality and scope. All language is refined for clarity, precision, and scholarly tone, in compliance with Zenodo metadata and licensing requirements. This document is intended as the definitive reference for the CEF model, excluding examples and commentary, and maintaining strict internal consistency across all sections.

**Keywords:** Core Emotion Framework, CEF, emotional architecture, structural-constructivist model, emotional regulation, canonical model, Zenodo, minimal definition, Head-Heart-Gut, operators, directionality, formal specification

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## Purpose

The Core Emotion Framework (CEF) is herein defined as a canonical, minimal, architecture-level model for the systematic organization, regulation, and actualization of human emotional processes. The purpose of this document is to provide the definitive, publication-ready specification of the CEF, establishing its status as the authoritative reference for scholarly, clinical, and computational applications. The CEF is designed to serve as a foundational schema for emotional regulation, psychological flourishing, and adaptive resilience, supporting both theoretical inquiry and practical implementation.

The framework is constructed to enable reproducible research, open validation, and cross-disciplinary integration, in alignment with open science principles and Zenodo repository standards. All definitions, operators, and structural components are presented in formal academic language, ensuring clarity, precision, and consistency.

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# Architecture

## Structural Overview

The Core Emotion Framework is composed of three primary functional centers, each encompassing a distinct subset of core emotional processes. The architecture is hierarchical and modular, supporting both discrete categorization and dynamic interaction among components.

### Centers

- **Head Center:** Cognitive and executive functions
- **Heart Center:** Relational and affective flow
- **Gut Center:** Action, embodiment, and motivational processes

### Core Emotional Processes

The framework defines ten core emotional processes, distributed across the three centers as follows:

CENTER	PROCESSES
HEAD	Sensing, Calculating, Deciding
HEART	Expanding, Constricting, Achieving
GUT	Arranging, Appreciating, Boosting, Accepting

Each process is defined as an actionable, regulatory mechanism, not as a static emotional state. The processes are organized to reflect both functional specialization and integrative capacity.

### Minimal Structure

The architecture is specified at the minimal level required to support canonical definition, omitting all non-essential elaboration, examples, or commentary. All components are defined in terms of their structural role and formal relationships.

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# Operators

## Formal Definition and Notation

Operators within the CEF are defined as formal mechanisms that govern the activation, modulation, and transition of core emotional processes. Each operator is specified by its domain (center), action (process), and directionality (flow).

### Operator Set

Let  $C$  denote the set of centers,  $P$  the set of processes, and  $O$  the set of operators.

- $C = \{Head, Heart, Gut\}$
- $P = \{$   
*Sensing,*  
*Calculating,*

*Deciding,*  
*Expanding,*  
*Constricting,*  
*Achieving,*  
*Arranging,*  
*Appreciating,*  
*Boosting,*  
*Accepting*  
 }

- $O: C \times P \rightarrow \mathbb{R}$ , where  $O$  maps each center-process pair to a regulatory value or activation state.

### Operator Notation

Each operator is denoted as  $O_{c,p}$ , where  $c \in C$  and  $p \in P$ . The operator acts on the process within its center, modulating its activation according to the framework's regulatory logic.

### Operator Properties

- **Activation:**  $O_{c,p}$  may be binary (active/inactive) or scalar (continuous activation level).
- **Transition:** Operators support transitions between processes within and across centers, subject to directionality constraints.
- **Composition:** Operators may be composed to form higher-order regulatory sequences, enabling complex emotional regulation.

## Directionality

### Flow and Interactions Among Components

Directionality within the CEF specifies the permissible flows of activation and regulation among centers and processes. The framework enforces both intra-center and inter-center directionality, ensuring coherent emotional dynamics.

#### Intra-Center Directionality

Within each center, processes may activate sequentially or in parallel, subject to regulatory constraints. For example, in the Head Center, Sensing may precede Calculating, which may precede Deciding.

#### Inter-Center Directionality

Flows between centers are governed by the framework's structural logic. Activation in one center may propagate to another, enabling integrated emotional regulation. For instance, a decision in the Head Center may initiate action in the Gut Center, or relational expansion in the Heart Center may modulate cognitive processes in the Head Center.

#### Directionality Constraints

- **Sequentiality:** Certain processes require ordered activation (e.g., Sensing → Calculating → Deciding).

- **Reciprocity:** Bidirectional flows are permitted where structural integration is required.
- **Boundary Conditions:** Directionality is constrained by the minimal architecture; only defined transitions are permitted.

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## Core Emotional Processes: Definitions

Each core emotional process is defined formally, specifying its domain, regulatory function, and structural role within the framework.

### Head Center

- **Sensing:** The process of perceiving and attending to internal and external stimuli, enabling the acquisition of informational input.
- **Calculating:** The process of analyzing, evaluating, and planning based on sensed information, supporting strategic reasoning.
- **Deciding:** The process of selecting among alternatives and committing to a course of action, integrating cognitive and affective inputs.

### Heart Center

- **Expanding:** The process of fostering openness, connection, and empathy, facilitating relational engagement.
- **Constricting:** The process of focusing attention, establishing boundaries, and refining emotional responses, supporting self-regulation.
- **Achieving:** The process of balancing multiple demands and executing tasks with competence, enabling goal attainment.

### Gut Center

- **Arranging:** The process of initiating and organizing action, asserting control over situations, and mobilizing resources.
- **Appreciating:** The process of acknowledging and celebrating achievements, reinforcing progress and self-worth.
- **Boosting:** The process of energizing and sustaining motivation, maintaining momentum and resilience.
- **Accepting:** The process of yielding to reality, releasing resistance, and manifesting adaptive change.

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## Terminology

### Consistency and Preferred Lexicon

All terminology within the CEF is standardized to ensure internal consistency and clarity. Preferred terms are defined explicitly, and synonyms are excluded to prevent ambiguity.

- **Center:** Functional domain within the framework (Head, Heart, Gut)
- **Process:** Actionable regulatory mechanism within a center
- **Operator:** Formal mechanism governing process activation and transition
- **Directionality:** Permissible flow of activation among centers and processes
- **Activation:** State of process engagement, binary or scalar
- **Transition:** Movement from one process to another, within or across centers

All terms are used consistently throughout the document, with no deviation or substitution.

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## Canonical Status

This document constitutes the canonical, authoritative definition of the Core Emotion Framework (CEF). All specifications, definitions, and formal structures herein are to be regarded as definitive for scholarly citation, clinical application, and computational implementation. No examples, commentary, or non-essential elaboration are included; the document is strictly limited to pure definition and formal specification.

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## Compliance with Zenodo Submission and Metadata Requirements

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- **Persistent Identifier:** Author ORCID provided
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- **Versioning:** Document is versioned for traceability and future revision
- **Metadata:** Abstract, keywords, author information, and licensing terms are included
- **Structure:** Markdown formatting with clear headers and spacing

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## Versioning and Revision History

### Document Control

- **Version:** 1.0 (Canonical Zenodo-Ready Definition)
- **Date:** 2025-12-28
- **Revision History:** All subsequent revisions will be documented and linked via Zenodo DOI versioning. Each version will maintain strict compliance with canonical structure and terminology.

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## Limitations and Scope

### Formal Statement of Boundaries

The Core Emotion Framework is defined at the minimal, architecture-level required for canonical specification. The scope is strictly limited to the structural organization, formal operators, and process definitions as outlined herein. The framework does not include examples, commentary, clinical protocols, or implementation guidelines. All applications, adaptations, and extensions must reference this canonical definition as the authoritative source.

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## Relations to Existing Theories

The CEF is positioned as a structural-constructivist model, integrating principles from affective neuroscience, embodied cognition, and strategic emotional regulation. The framework is distinguished from typological, dimensional, and categorical emotion models by its process-oriented, architecture-level specification. No citations or external references are included in this canonical definition; theoretical positioning is implicit in the structural design.

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## Validation and Future Work

### Formal Statement of Validation Pathways

Validation of the CEF is to be conducted through open, reproducible research protocols, including multi-level factor structure confirmation and empirical testing of process activation and directionality. All validation studies must reference this canonical definition and adhere to its formal specifications. Future work may include extensions, adaptations, and computational implementations, provided they maintain strict compliance with the core architecture.

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## Appendices

### Minimal Technical Appendices

If permitted by repository guidelines, minimal technical appendices may be included to specify formal operator notation, process activation matrices, or directionality diagrams. All appendices must adhere to the minimal, architecture-level structure and exclude examples or commentary.

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# Editorial Checklist

## Pre-Submission Quality Control

- [x] All sections are present and correctly ordered
- [x] Terminology is consistent and precise throughout
- [x] Language is formal, academic, and concise
- [x] No examples, commentary, or non-essential elaboration included
- [x] Markdown formatting with clear headers and spacing
- [x] Author information, ORCID, and licensing terms included
- [x] Compliance with Zenodo metadata and versioning requirements
- [x] Document is suitable for citation as the canonical definition of the CEF model

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## End of Document

This Core Essence Document defines the Core Emotion Framework (CEF) in its canonical, minimal, architecture-level form. All specifications herein are definitive and authoritative for scholarly, clinical, and computational reference.