Core Emotion Framework (CEF): Technical Specification 6 (TS-6)

Structural-Constructivist Mapping of Human Experience

Technical Specification for Decomposing All Human Experiences and Emotional Expressions into the 10 Core Functional Powers of the Core Emotion Framework (CEF)

Version 1.0 — Zenodo-Ready

Author: Jamel Bulgaria
ORCID: 0009-0007-5269-5739
Affiliation: OptimizeYourCapabilities.com
Contact: admin@optimizeyourcapabilities.com
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Abstract

The Core Emotion Framework (CEF) Technical Specification 6 (TS-6) defines the canonical structural-constructivist mapping engine used to decompose any human emotional expression or experience into the ten core functional powers of the CEF. Building on the architectural definitions of TS-1, the validation logic of TS-2, the computational structures of TS-3, and the simulation protocols of TS-4, TS-6 establishes the formal rules, representational standards, and canonical constraints governing emotional composition. The specification introduces a hybrid symbolic–vector representation format, a deterministic mapping pipeline, and a machine-readable schema for computational and semantic-web integration. TS-6 provides the authoritative framework for identifying active functional powers, assigning intensities, normalizing ratios, validating compositions, and ensuring structural fidelity across all CEF-based lexicons, models, and applications. This document serves as the foundational standard for the EL-Series global emotional lexicon and all future compositional, analytic, and computational work within the CEF canon.

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0. Document header

Document ID: TS-6
Version: 1.1 (Canonical, Drift-Corrected)
Status: Published
Canonical Position: Sixth Technical Specification in the CEF Canon
Dependencies: TS-1 (Technical Specification), TS-2 (Validation Architecture), TS-3 (Computational Specification), TS-4 (Simulation & Modeling Protocols), TS-5 (Lexical Integration)
Governing Body: Core Emotion Framework Canonical Architecture

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1. Purpose and scope

TS-6 defines the formal architecture, rules, and representational standards for mapping any human emotional expression or experience to the 10 core functional powers of the Core Emotion Framework (CEF).

TS-6 specifies:

- **Mapping engine:** Structural-constructivist rules for decomposing experiences into functional powers.
- **Representation standard:** Hybrid symbolic + vector representation.
- **Operational rules:** Identification, decomposition, and validation of compositions.
- **Canonical constraints:** Conditions ensuring cross-document consistency within the CEF canon.
- **Machine-readable schema:** Formal structures for computational and semantic web integration.

1.1 Inclusions

TS-6 governs the mapping of:

- **Linguistic expressions:** All emotional expressions across all natural languages.
- **Historical expressions:** Emotions and affective constructs across all historical eras.
- **Domain-specific expressions:** Clinical, aesthetic, moral, spiritual, literary, anthropological, organizational, and related domains.
- **Granularity:** Affective states, micro-emotions, meta-emotions, mixed emotions, and compound experiences.

- **Modalities:** Somatic, cognitive, relational, existential, and social emotional expressions.

1.2 Exclusions

TS-6 does **not** include:

- **Global emotional lexicon:** The full cross-linguistic lexicon (defined in the EL-Series).
- **Clinical interpretation:** Psychopathology structures and diagnostic mappings (TS-7).
- **Neurodiversity calibration:** Trait, style, and profile calibration (TS-8).
- **Synthetic affect:** INTIMA and synthetic affective benchmarks (TS-9).
- **Therapeutic protocols:** Structured disassembly and intervention sequences (TS-10).

TS-6 defines the **mapping engine only**.

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2. Definitions

For the purposes of TS-6, the following terms are defined formally:

- **Experience:**
  A subjective, affective, cognitive, somatic, relational, or existential state that can be decomposed into functional powers.
- **Emotional expression:**
  Any linguistic, behavioral, cultural, or symbolic label that refers to an affective state or experience.
- **Functional power:**
  One of the 10 irreducible core emotional processes defined in the CEF architecture, instantiated as operator-level regulatory functions.
- **Composition:**
  A structured combination of functional powers, each with an assigned intensity, that together model an emotional experience.
- **Center (domain):**
  One of the three CEF centers: Head, Heart, Gut, defined canonically in TS-1.

- **Intensity:**
  A numerical value representing the magnitude or contribution of a functional power within a composition, typically normalized to a ($[0,1]$) range.
- **Ratio:**
  The relative weighting of functional powers in a composition; usually represented via normalized intensities summing to 1.0.
- **Symbolic representation:**
  A human-readable expression of a composition using functional power names, usually ordered by contribution.
- **Vector representation:**
  A 10-dimensional numerical array encoding intensities for each functional power in a fixed canonical order.
- **Hybrid representation:**
  A combined representation including symbolic form, vector form, and associated metadata.

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3. Architectural model

3.1 The ten functional powers (canonical assignment)

TS-1 and the Core Essence Document define the following canonical assignment of processes to centers:

- **Head Center (cognitive and executive regulation):**
  - Sensing
  - Calculating
  - Deciding
- **Heart Center (relational and affective flow):**
  - Expanding
  - Constricting
  - Achieving
- **Gut Center (action, embodiment, and motivational drive):**
  - Arranging
  - Appreciating

- Boosting
- Accepting

TS-6 does **not** redefine centers or processes; it strictly inherits this mapping from TS-1.

3.2 Structural-constructivist principle

All emotional experiences are modeled as compositions of the 10 functional powers:

- **Completeness:**
  Every emotional expression is representable as a composition of these powers.
- **Irreducibility:**
  No additional functional powers are introduced.
- **Constructivism:**
  Complex experiences are constructed from multiple powers rather than treated as atomic states.

3.3 Composition equation

For any emotional expression (E), TS-6 defines:

$$E = \sum_{i=1}^{10} (FP_i \times I_i)$$

where:

- (FP_i) is the (i)-th functional power (in canonical order).
- (I_i) is its intensity (typically in ($[0,1]$), often normalized so ($\sum I\_i = 1$)).

3.4 Mapping pipeline (conceptual overview)

TS-6 defines a canonical pipeline for mapping any emotional expression:

1. **Feature identification**
2. **Functional power activation selection**
3. **Intensity assignment**
4. **Ratio normalization**
5. **Symbolic construction**
6. **Vector construction**
7. **Validation against canonical constraints**

Subsequent sections define these steps more formally.

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4. Representation Standards

4.1 Symbolic Representation

A symbolic representation expresses an emotional composition as an ordered list of functional powers, arranged from highest to lowest intensity.
Only the ten canonical functional powers may appear.
Symbolic representations must reflect the normalized intensity ordering derived from the mapping pipeline.

4.2 Vector Representation

A vector representation expresses an emotional composition as a ten-element numerical array corresponding to the ten functional powers in canonical order:

Sensing,Calculating,Deciding,Expanding,Constricting,Achieving,Arranging,Appreciating,Boosting,Accep

Each value represents the normalized intensity of the corresponding functional power.
All values must be non-negative.
At least one value must be non-zero.

4.3 Normalization

All intensities must be normalized such that the highest intensity equals 1.0 unless the composition is uniformly zero, which is invalid.
Normalization preserves relative proportions between functional powers.

4.4 Optional Metadata

Optional metadata may accompany a TS-6 compliant representation to support search, interoperability, and integration with external frameworks.

Optional metadata does **not** participate in the CEF mapping engine and **must not** alter the symbolic or vector representation. It may not introduce alternative structural constructs beyond the ten canonical functional powers.

Permissible metadata fields include, but are not limited to:

- **Contextual descriptors:** Free-text notes describing situational, cultural, or narrative context.
- **Linguistic descriptors:** Language codes, register labels (e.g., clinical, colloquial, literary), and usage notes.
- **Domain descriptors:** Application domains (e.g., clinical, organizational, educational,

artistic) where the expression is used.
- **Affective descriptors (external frameworks):** Valence and arousal labels or scores drawn from non-CEF models (e.g., circumplex models of affect). These fields are allowed **only** as external descriptors for interoperability and must not be treated as functional powers, centers, or structural categories within the CEF.

All metadata fields are strictly optional, implementation-specific, and non-canonical. The CEF architecture, as defined in TS-1 through TS-4 and implemented in TS-6, is fully specified by the ten functional powers and their intensities alone.

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5. Mapping algorithm

5.1 Step-by-step procedure

TS-6 defines the following canonical mapping procedure:

1. **Feature extraction**
    - **Input:** An emotional expression (E) (word, phrase, description, or vignette).
    - **Task:** Identify cognitive, somatic, relational, motivational, and contextual features relevant to (E).
2. **Power activation selection**
    - **Task:** Determine which of the 10 functional powers are actively contributing to (E).
    - **Constraint:** Only the 10 canonical powers may be used; no additional powers are introduced.
3. **Intensity assignment**
    - **Task:** Assign a raw intensity value (I_i) to each active power (and zero to inactive ones).
    - **Range:** Typically ($[0,1]$) or another defined continuous range.
4. **Ratio normalization**
    - **Task:** Normalize intensities so that ($\sum_{i=1}^{10} I_i = 1.0$) (unless a different normalization rule is explicitly specified).
5. **Symbolic construction**
    - **Task:** Generate a symbolic representation by listing all powers with non-zero intensity in descending order of (I_i).

6. **Vector construction**
    - **Task:** Construct a 10-element vector in the canonical order (Section 4.1) using the normalized intensities.
7. **Validation**
    - **Task:** Validate the composition according to the canonical constraints in Section 6.

5.2 Primary vs. secondary powers

To support interpretation and analysis, TS-6 defines:

- **Primary powers:**
  Functional powers with intensity ($I_i \geq 0.20$) (after normalization, if used).
- **Secondary powers:**
  Functional powers with ($0 < I_i < 0.20$).

Thresholds may be adjusted in specific applications, but TS-6 recommends (≥ 0.20) as a default cutoff for primary contributions.

5.3 Ambiguous expressions

For ambiguous expressions (e.g., polysemous terms, context-dependent labels):

- **Multiple compositions:**
  The expression may be mapped to multiple distinct compositions, each corresponding to a different meaning or context.
- **Disambiguation:**
  Each composition must be internally valid and separately validated.
- **Context indexing:**
  Implementations should label or index each composition with contextual qualifiers where possible.

5.4 Drift prevention rules

To prevent conceptual or structural drift:

- **No new powers:**
  No composition may introduce new functional powers beyond the 10 canonical ones.
- **No re-assignment:**
  Functional powers may not be assigned to different centers than those defined in TS-1.

- **No renaming:**
  Canonical names (Sensing, Calculating, etc.) must be used without substitution or synonym replacement in formal representations.
- **No altered definitions:**
  TS-6 does not modify the definitional content of powers; it only uses them for mapping.

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6. Canonical constraints

A representation is valid if and only if:

1. It uses only the ten canonical functional powers.
2. The symbolic and vector forms correspond exactly.
3. Intensities are normalized correctly.
4. No negative values appear in the vector.
5. At least one functional power has non-zero intensity.
6. Canonical order is preserved in the vector.

Validation does **not** require center totals, center summaries, or any center-based metadata.

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7. Examples

Example: “Anger” (Illustrative Only)

Symbolic: Constricting > Boosting > Arranging > Sensing
Vector:

$$0.3, 0.0, 0.0, 0.1, 1.0, 0.0, 0.6, 0.0, 0.8, 0.0$$

Example: “Joy” (Illustrative Only)

Symbolic: Expanding > Appreciating > Boosting > Accepting > Sensing
Vector:

$$0.2, 0.0, 0.0, 1.0, 0.0, 0.2, 0.1, 0.9, 0.6, 0.5$$

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8. Machine-readable specification

8.1 JSON schema (conceptual)

A TS-6-compliant JSON structure for a mapped expression **must** include at least:

- **expression:** String label of the emotional expression.
- **symbolic:** Ordered list of canonical functional power names.
- **vector:** 10-element numeric array in canonical order.
- **metadata:** Optional extended fields.

Example schema (informal):

{

"expression": "string",

"symbolic": ["Sensing", "Expanding", "..."],

"vector": [0.0, 0.3, 0.1, 0.7, 0.0, 0.2, 0.1, 0.6, 0.4, 0.5],

},

"metadata": {

"valence": "positive",

"arousal": "high",

"language": "en"

}

Metadata fields (including any valence/arousal labels or scores) are external descriptors only and do not participate in the TS-6 mapping pipeline or alter the symbolic or vector representation.

}

8.2 Vector schema

- **Type:** Array of 10 numbers (float or fixed-precision).
- **Order:**
  [[\text{Sensing}, \text{Calculating}, \text{Deciding}, \text{Expanding}, \text{Constricting}, \text{Achieving}, \text{Arranging}, \text{Appreciating}, \text{Boosting}, \text{Accepting}]]
- **Constraints:** Range and normalization as per implementation, but consistent across the dataset.

8.3 Symbolic schema

- **Type:** List of strings.
- **Allowed values:** Exactly the 10 canonical names.

- **Ordering:** Strictly descending by intensity; ties may be broken by canonical order.

8.4 Example encoding (illustrative only)

Example for an expression typically associated with positive affect and engagement (values are illustrative, not empirical):

{

"expression": "Happiness",

"symbolic": ["Expanding", "Appreciating", "Boosting", "Accepting", "Sensing"],

"vector": [0.1, 0.0, 0.0, 0.7, 0.1, 0.1, 0.2, 0.6, 0.5, 0.4],

},

"metadata": {

"valence": "positive",

"arousal": "medium-high"

}

}

This example respects:

- canonical process names
- canonical vector order
- canonical process-to-center assignment

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9. Appendix A: Canonical-style examples (illustrative)

Values below are **illustrative** and not empirically validated. They demonstrate **format and structural rules**, not normative content.

9.1 Happiness

- **Symbolic:** Expanding + Appreciating + Boosting + Accepting + Sensing
- **Vector (canonical order):**
  [[0.1, 0.0, 0.0, 0.7, 0.1, 0.1, 0.2, 0.6, 0.5, 0.4]]

9.2 Fear

An example emphasizing boundary, appraisal, and action preparedness.

- **Symbolic:** Sensing + Constricting + Arranging + Boosting
- **Vector:**
  [[0.6, 0.0, 0.0, 0.1, 0.7, 0.0, 0.5, 0.0, 0.4, 0.0]]

9.3 Awe

An example with strong openness and cognitive-perceptual engagement.

- **Symbolic:** Sensing + Expanding + Appreciating + Accepting
- **Vector:**
  [[0.5, 0.0, 0.0, 0.8, 0.1, 0.0, 0.0, 0.6, 0.2, 0.4]]

These examples remain structurally consistent with TS-6 constraints and TS-1 canonical assignments.

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10. Appendix B: Reserved extensions

TS-6 reserves the following series and specifications for extended use:

- **TS-7:** Structural Psychopathology (clinical mapping and dysregulation patterns)
- **TS-8:** Neurodiversity Calibration (individual differences and trait calibration)
- **TS-9:** Synthetic Affect & INTIMA (AI and synthetic emotional systems)
- **TS-10:** Therapeutic Structural Disassembly (protocols for structured emotional work)
- **EL-Series:** Global Emotional Lexicon (multi-volume, cross-linguistic lexicon built on TS-6)

End of TS-6 (Version 1.1, Canonical)