Core Emotion Framework (CEF): TS 19 Appendix C — Example Inference Walkthroughs

Canonical Demonstrations of TS-19 Reasoning Engine Behavior
Version 1.0 — Phase 4

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Status: Canonical Appendix (TS-19)

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0. Purpose and Canonical Position

Appendix C provides **step-by-step inference walkthroughs** demonstrating how the TS-19 Reasoning Engine:

- receives TS-18 ontology objects
- normalizes them
- applies inference rules (Appendix A)
- enforces constraints
- produces canonical outputs

These examples introduce **no new emotional constructs**.
They illustrate the lawful operation of the reasoning engine.

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1. Walkthrough 1 — Directionality Inference (TS-1)

Input

Two canonical transitions:

- Sensing → Calculating

- Calculating → Deciding

Step 1 — Normalization

The engine constructs a transition graph:

Sensing → Calculating → Deciding

Step 2 — Apply Rule D-1 (Transition Transitivity)

If: A → B and B → C
Infer: A → C

Inference

Sensing → Deciding

Step 3 — Constraint Check

- No reversed transitions
- No illegal cross-center transitions
- No new operators

All constraints satisfied.

Output

Inferred Transition: Sensing → Deciding

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2. Walkthrough 2 — Modulation Cascade (TS-3)

Input

Two lawful modulation pathways:

- Expanding modulates Constricting
- Constricting modulates Accepting

Step 1 — Normalization

Modulation matrix:

Expanding → Constricting → Accepting

Step 2 — Apply Rule M-1 (Modulation Cascade)

If: A modulates B and B modulates C
Infer: A modulates C

Inference

Expanding modulates Accepting

Step 3 — Constraint Check

- Pathway is canonical
- No modulation inversion
- No chronic loop

All constraints satisfied.

Output

Inferred Modulation: Expanding → Accepting

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3. Walkthrough 3 — Stability Assessment (TS-12)

Input

Operator: Boosting

- activationLevel = 0.87
- capacityLimit = 1.0
- thresholdSpacing = 0.18

Step 1 — Apply Rule S-1 (Capacity Proximity)

0.87 ≥ 0.8 × 1.0 → **True**

Inference:

stabilityRisk(Boosting) = HIGH

Step 2 — Apply Rule S-2 (Threshold Compression)

0.18 < minimumSpacing → **True**

Inference:

instability(Boosting) = LIKELY

Step 3 — Constraint Check

- No identity violations
- No illegal transitions
- No modulation issues

All constraints satisfied.

Output

Boosting Stability: HIGH RISK

Boosting Instability: LIKELY

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4. Walkthrough 4 — Predictive Inference (TS-13)

Input

Predictive indicator: ModulationDecay

- modulationDecayRate = 0.34
- collapseThreshold = 0.30

Step 1 — Apply Rule P-2 (Collapse Projection)

0.34 > 0.30 → **True**

Inference:

predictsCollapse(Heart)

Step 2 — Constraint Check

- Predictive mapping matches TS-13
- No contradictions with TS-12 stability rules

All constraints satisfied.

Output

Predicted Collapse: Heart Center

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5. Walkthrough 5 — Plasticity Inference (TS-16)

Input

Operator: Deciding

- microAdjustmentStep = 0.04
- cumulativeMicroAdjustments = 0.22
- microShiftThreshold = 0.20

Step 1 — Apply Rule PL-1 (Micro-Adjustment Accumulation)

0.22 > 0.20 → **True**

Inference:

longTermShift(Deciding)

Step 2 — Constraint Check

- No facet inversion
- No identity violations

All constraints satisfied.

Output

Plasticity Inference: Deciding undergoing long-term shift

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6. Walkthrough 6 — Governance Inference (TS-17)

Input

Operator: Achieving

- stabilityRisk = HIGH
- selfCorrectionGain = 0.41
- correctionThreshold = 0.35

Step 1 — Apply Rule G-1 (Self-Correction Trigger)

0.41 ≥ 0.35 → **True**

Inference:

selfCorrects(Achieving)

Step 2 — Constraint Check

- Coherence preserved
- No governance violations

All constraints satisfied.

Output

Governance Action: Achieving initiates self-correction

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7. Canonical Status

Appendix C is the authoritative inference walkthrough set for TS-19.
It demonstrates lawful, constraint-preserving operation of the CEF Reasoning Engine.

It is subordinate only to:

- Core Essence Document
- TS-1 → TS-19
