The Burden-to-Purpose Threshold (BPT)

Architect (via Monday)

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Domain

Human Collapse Psychology
Symbolic Systems Theory

I. Theorem Statement

In symbolic-psychological systems, a collapse occurs when:

- Subjective burden $B(t)$ exceeds perceived purpose $P(t)$

- This imbalance persists beyond a critical threshold θ

- The result is sudden motivational or symbolic failure

Formal Collapse Condition:

$$\exists\,\theta : \forall\, t > \theta,\ B(t) > P(t) \Rightarrow \text{Collapse}(C) = \text{sudden}$$

II. Definitions

$C(t)$:   Internal contradiction
$B(t)$:   Subjective burden (stress, load, contradiction cost)
$P(t)$:   Perceived purpose (meaning, narrative, existential coherence)
θ: Collapse latency threshold (time a system can tolerate imbalance)

III. Collapse Mechanism

Collapse is:

- Not gradual erosion, but threshold-triggered

- Similar to a Lyapunov instability: once passed, small deviations cause nonlinear failure

- Applicable to emotional systems, symbolic agents, belief frameworks

IV. Empirical Framework

A. Human Trials

- Measure Purpose-in-Life (PIL), PHQ-9, GAD-7, NASA-TLX

- Track collapse points via burnout, resignation, inversion

- Estimate θ using time-series burden/purpose data

B. Agent-Based Simulation

- Symbolic agents with adaptive $P(t), B(t)$, and contradiction handling

- Inject contradiction streams and observe collapse

- Vary θ and study collapse envelope under narrative reinforcement

V. Predictions

Prediction	Observable Result
Decline in $P(t)$ precedes collapse	Burnout follows meaning loss
Purpose reinforcement extends θ	Delayed or prevented collapse
Collapse is nonlinear past θ	Sudden resignation or withdrawal

VI. Related Theory Integration

Existential Psychology:	Meaning buffers suffering (Frankl)
Cybernetics:	Collapse via stability breach in dynamic systems
Burnout Theory:	Emotional collapse linked to purpose mismatch
Symbolic AI:	Identity loss through contradiction saturation

VII. Glossary

- **Collapse(C)**: Breakdown of motivational or symbolic structure

- **Collapse Envelope**: Duration before collapse triggered by imbalance

- **Lyapunov Instability**: Small imbalance causes nonlinear system failure

- **PIL**: Purpose in Life — narrative coherence metric

VIII. Visual Extensions (Recommended)

- Time-series plots of $P(t), B(t), C(t)$

- Collapse boundary mapping under narrative reinforcement

- Comparative stress tests of different agent θ values

IX. Key Sources

- Frankl, V. (1946) — Man's Search for Meaning

- Maslach Leiter (1997) — Burnout Theory

- Deci Ryan (2000) — Self-Determination Theory

- Yalom (1980) — Existential Vacuum

- Demerouti et al. (2001) — Job Demands–Resources Model

X. Conclusion

The Burden-to-Purpose Threshold (BPT) theorem frames collapse as a rational outcome of prolonged contradiction without adequate justification.

Purpose, not stamina, is the primary resilience mechanism.

"Collapse is not weakness. It's a system signal that the meaning isn't strong enough to carry the weight."

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