The Attractor Framework as a Formal Mapping of Taoist Dynamics

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Abstract

Philosophical Taoism (wu wei, ziran, pu, no-self) describes a mode of cognition characterized by spontaneity, low resistance, and minimal effort. This paper maps these constructs onto the attractor framework's latent variables: conditional corrective permeability (κ), basin depth (B_depth), transition barrier (B_transition), and derived effort (E). Rather than assuming multi-dimensional independence, the model is explicitly framed as a hypothesis about a **low-dimensional stability–plasticity axis** in cognitive control systems.

The central claim is not structural equivalence, but regime correspondence: Taoist practice may bias cognition toward a region of state space characterized by high conditional κ, low B_transition, and low derived E, moderated by identity fusion. A full measurement model is specified in Galida (2026b), and a simulation-based identifiability analysis is introduced in this paper to determine whether the proposed latent structure is recoverable from observed indicators.

All claims are conditional on successful model-recovery

validation. The framework is therefore a coupled system of theory, measurement, simulation, and intervention logic.

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1. Introduction

Philosophical Taoism (Laozi, Zhuangzi) describes an art of effortless action (wu wei), spontaneous correctness (ziran), and uncarved simplicity (pu). These descriptions resist reduction to standard cognitive constructs but appear to cluster around a consistent behavioral regime: low resistance to updating, low conflict persistence, and reduced identity entrenchment.

This paper maps these concepts onto the attractor framework's latent-variable model (Galida, 2026b), which defines:

- **Conditional κ**: update gain under low-conflict uncertainty
- **B_depth**: energetic stability of an attractor
- **B_transition**: switching cost between attractors
- **E**: metabolic/computational effort per update (derived unless independently identified)

However, this paper does not assume these variables are empirically separable. Instead, it advances a **stability–plasticity axis hypothesis**, where all observed structure may collapse onto a single latent dimension. Whether κ, B_depth, and B_transition are separable constructs or projections of one axis is treated as an empirical identifiability problem.

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2. Formal Hypothesis Mapping

Taoist Concept	Predicted Attractor Pattern	Measurement Indicators (Galida, 2026b)
Wu wei	High conditional κ, low B_transition, low derived E	Reversal learning τ (short), hysteresis index (low), HRV (high)
Ziran	High first-response accuracy, no second-order correction	First-trial accuracy; absence of post-correction rationalisation
Pu	Low initial B_depth	Low identity fusion; low baseline reversal cost
No-self	Reduced identity modulation of B_depth	Identity fusion scale; identity-linked reversal tasks

Falsification criterion: absence of group differences in predicted directions invalidates the mapping.

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3. Dimensionality Assumption: Stability–Plasticity Axis Hypothesis

Cognitive control dynamics may be governed by a single latent stability–plasticity axis, with κ, B_depth, and B_transition acting as correlated projections.

Under this hypothesis:

- κ reflects movement toward plasticity
- B_depth reflects stability of attractor basins
- B_transition reflects hysteresis along the same axis
- E reflects energetic cost of traversal (possibly

derivative)

The central empirical question is whether this axis is sufficient, or whether higher-dimensional structure is required.

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4. Expected Correlation Structure and Model Constraints

Under a single-axis model:

- κ positively correlates with plasticity
- B_depth and B_transition negatively correlate with κ
- all indicators load on one latent factor

Under a multi-factor model:

- κ, B_depth, B_transition load onto separable but correlated factors
- oblique rotation preserves interpretability
- cross-loadings remain low

Rotation invariance testing (geomin, promax) is used to prevent artificial factor separation.

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5. Temporal Model Constraint

To avoid static over-separation:κt+1=κt+α(errort−βκt)\kappa_{t+1} = \kappa_t + \alpha (\text{error}_t − \beta \kappa_t)κt+1=κt+α(errort

−βκt□)

This encodes adaptive gain regulation over time and enforces stability–plasticity tradeoffs dynamically rather than statically.

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6. Simulation-Based Identifiability Analysis

6.1 Generative Null Model (Single Axis)

A latent variable zt~N(0,1)z_t \sim \mathcal{N}(0,1)zt□~N(0,1) generates all observables:κt=a1zt+ϵκ\kappa_t = a_1 z_t + \epsilon_{\kappa}κt□=a1□zt□+ϵκ□ Bdepth,t=a2(−zt)+ϵBdB_{\text{depth},t} = a_2 (-z_t) + \epsilon_{B_d}Bdepth,t□=a2□(−zt□)+ϵBd□□ Btransition,t=a3(−zt)+ϵBtB_{\text{transition},t} = a_3 (-z_t) + \epsilon_{B_t}Btransition,t□=a3□(−zt□)+ϵBt□□ Et=a4(−zt)+ϵEE_t = a_4 (-z_t) + \epsilon_{E}Et□=a4□(−zt□)+ϵE□

All observed structure is thus a projection of a single cognitive axis.

6.2 Competing Models

- One-factor CFA model (null hypothesis)
- Three-factor SEM model (theoretical attractor structure)

6.3 Recovery Conditions

Validity of measurement inference requires:

- correct recovery of one-factor structure under null simulation
- correct recovery of multi-factor structure under simulated separation
- stable factor interpretation across rotation methods

6.4 Rotation Stability Test

All solutions are evaluated under:

- geomin rotation
- promax rotation

Instability is defined by:

- cross-loadings > 0.4
- factor structure reversal under rotation
- loss of interpretability

6.5 Decision Rule

Empirical interpretation is valid only if simulation confirms:

- identifiability of factor structure
- rotation stability
- model fit separation (ΔCFI, RMSEA thresholds)

Otherwise, observed structure collapses to a **single stability–plasticity axis model**.

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7. Asymmetry of Convergence

Three regimes are distinguished:

Regime	Interpretation	Signature
True convergence	Taoism maps onto full latent structure	Strong multi-factor separation
Partial projection (default)	Taoism selects stability–plasticity region	κ and B_transition effects dominate
Measurement artifact	Task structure drives apparent effects	Weak cross-task generalization

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8. Control Philosophy: Coercive Perturbation vs. Incremental Attractor Shaping (NEW)

Complex adaptive systems exhibit nonlinear responses, path dependence, and hysteresis. As a result, they do not respond uniformly to high-amplitude intervention.

Within the attractor framework, two classes of system modulation are distinguished:

8.1 Coercive perturbation

Large-magnitude interventions intended to directly force state transitions across attractor boundaries.

These often produce:

- rebound effects
- attractor deepening
- increased hysteresis

8.2 Incremental attractor shaping

Low-amplitude, high-frequency, context-sensitive perturbations that gradually reshape:

- basin geometry (B_depth)
- transition barriers (B_transition)
- update dynamics (κ)

This regime does not force state transitions; it **steers trajectory evolution within the existing state space**.

A useful analogy is **lucid dream navigation**, where system evolution is not overridden but locally biased through iterative constraint modulation.

Importantly, this distinction is not cultural or civilizational. It refers to two classes of control strategy over nonlinear systems:

- high-amplitude, low-frequency forcing
- low-amplitude, high-frequency adaptive shaping

The attractor framework predicts that incremental shaping is more effective in systems characterized by:

- high identity coupling
- strong hysteresis
- long memory effects

Taoist practice is hypothesized to instantiate this second regime: not as metaphysical alignment, but as a **control strategy over cognitive attractor landscapes**.

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9. Testable Predictions (Pre-Registered)

1. Taoist practitioners show higher κ, lower B_transition, lower E
2. Effects stronger in uncertainty-heavy tasks than simple RT tasks
3. Identity fusion predicts B_depth across participants
4. Taoist affiliation predicts reduced fusion
5. 8-week intervention increases κ and reduces B_transition
6. CFA favors multi-factor model but with strong inter-factor correlations
7. Incremental intervention regimes outperform coercive regimes in shifting κ/B_transition balance

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10. Limitations

- No empirical data yet
- Dimensionality may collapse to single axis
- Taoism modeled only in philosophical form
- Laboratory tasks may not capture long-timescale attractor dynamics
- Control regime classification requires further operationalization

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11. Conclusion

This paper formalizes Taoist cognitive dynamics as a hypothesis about positioning within a **stability–plasticity manifold**. It explicitly rejects the assumption of guaranteed multi-dimensional structure and instead treats dimensionality as an empirical question resolved through simulation-based identifiability testing.

Within this framework, cognitive change is not best understood as forced state transition, but as **incremental shaping of attractor geometry under nonlinear constraints**. Taoist practice is hypothesized to align with this latter regime, emphasizing gradual, low-distortion modulation of system dynamics rather than coercive intervention.

Whether this mapping reflects distinct latent structure or a single underlying axis remains an open empirical question.

References

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Religions and Philosophies as Attractor Landscapes: A Comparative Analysis Application Paper – June 2026 [A] (Application)

Abstract

The attractor framework distinguishes conservative attractors (eternal skeleton) from dissipative attractors (transient dance). This paper applies the framework to six major religious and philosophical traditions: Judaism, Christianity, Islam, Taoism, Buddhism, and Confucianism. Each tradition is analyzed as a *family of attractors* rather than a single attractor. Key variables are basin depth (B), corrective permeability (κ), sealing mechanisms, and vulnerability to becoming a fantasy attractor (low κ, deep basin, sealed against correction). The paper clarifies that κ is operationalized here as responsiveness to **empirical** evidence (e.g., historical, scientific); other forms of correction (moral, social, existential) are not the focus. A distinction is drawn between **stability attractors** (adaptive low κ that serves continuity) and **fantasy attractors** (pathological low κ that seals against reality despite mounting contradiction). The paper introduces the term *stability attractor* as a proposed refinement to the framework. The analysis reveals a spectrum, with philosophical Taoism and early Buddhism exhibiting high κ, shallow basins, while orthodox Christianity and Islam have deeper basins and lower κ. Confucianism is

analyzed as a dissipative attractor whose primary content concerns social coordination rather than doctrinal belief. The paper concludes that no tradition is inherently a fantasy attractor; specific interpretations and institutionalizations determine basin depth and permeability. Recognising these attractor landscapes can help scholars identify when a tradition is serving adaptive correction and when it has sealed itself against reality — often a useful precursor to effective dialogue or internal renewal.

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1. Introduction

Religious and philosophical traditions persist across centuries. They adapt, split, reform, and sometimes seal themselves against correction. The attractor framework provides a vocabulary to describe these dynamics using **basin depth (B)** , **corrective permeability (κ)** , **sealing mechanisms**, and the risk of becoming **fantasy attractors** — belief systems with κ → 0, deep basins, and active resistance to disconfirming evidence (these terms are defined in §2).

This paper applies these concepts to six traditions: Judaism, Christianity, Islam, Taoism, Buddhism, and Confucianism. It does not judge truth claims; it diagnoses dynamical properties. Critically, **in this paper κ is operationalized as responsiveness to *empirical* evidence** (e.g., historical, archaeological, scientific). Traditions may legitimately have low κ for non-empirical goals (e.g., social cohesion, identity preservation). The paper distinguishes **stability attractors** (adaptive low κ that serves continuity) from **fantasy attractors** (pathological low κ that seals against reality despite mounting contradiction). The term *stability attractor* is introduced here as a proposed refinement to the framework. The conclusion restates this diagnostic stance.

2. Framework Brief (with definitions)

- **Conservative attractor** – persists without energy input, time-symmetric, mindless. *Resists perturbation passively* (no internal correction). Example: the three metronomes (electron, proton, neutrino) as defined in the framework's foundational papers.
- **Dissipative attractor** – requires continuous energy/feedback, time-asymmetric, adaptive, mortal. *Actively maintained* by social or cognitive reinforcement.
- **Basin depth (B)** – resistance to change. Deep basins are hard to perturb.
- **Corrective permeability (κ)** – in this paper, κ is operationalized as the rate of updating in response to **empirical** evidence (e.g., historical facts, scientific discoveries). **$\kappa = 1/\tau$** where τ is the characteristic time for the system to return to its attractor after a perturbation. High κ = corrigible; low κ = sealed.
- **Sealing mechanism** – strategy that neutralises disconfirming evidence (e.g., "God works in mysterious ways," "the text is infallible").
- **Fantasy attractor** – low κ, deep basin, active sealing, *and* the beliefs make empirical claims that contradict evidence. Resists correction even when evidence is overwhelming.
- **Stability attractor** (introduced here) – low κ, deep basin, but serves adaptive functions (e.g., constitutional continuity, cultural identity) without making strong empirical claims that conflict with reality. This is a proposed refinement to the framework.

Throughout, B and κ assignments are qualitative, based on historical evidence: rates of schism, doctrinal revision, response to disconfirming events, and the presence of internal reform mechanisms. The paper treats each tradition as a **family of attractors**; the values given represent mainstream, orthodox forms, with recognition that internal diversity exists.

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3. Judaism

Core attractor: Covenant between God and Israel; Torah as divine law.

Attractor type: Dissipative (requires constant practice, study, community reinforcement).

Basin depth (B): Moderate to deep. Jewish law (halakha) provides extensive guidance; deviation is discouraged. However, the destruction of the Second Temple and the Bar Kokhba revolt forced adaptation (e.g., shift from Temple sacrifice to prayer and study) — showing that B is not absolute.

Corrective permeability (κ): Moderate. Rabbinic tradition includes debates, reinterpretation, and adaptation to new circumstances (e.g., the *prozbúl* to avoid debt forgiveness in the Sabbatical year). The Talmud preserves majority/minority opinions, institutionalising dissent. This unique feature — preserving arguments rather than erasing them — creates a basin with high internal turbulence and moderate κ.

Sealing mechanisms: Appeal to divine authority of Torah; concept of *chok* (law without reason) for certain commandments; social pressure from community.

Vulnerability to fantasy attractor: Moderate. Ultra-Orthodox sects can exhibit low κ, but mainstream Judaism has maintained

corrigibility through legal reasoning and historical adaptation.

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4. Christianity

Core attractor: Jesus Christ as saviour; Trinity; salvation through faith (or faith and works).

Attractor type: Dissipative (requires worship, sacraments, community, mission).

Basin depth (B): Deep. Core doctrines (Nicene Creed) are rigidly defined. Schisms (Catholic, Orthodox, Protestant) created separate basins, each with its own depth. The Reformation, however, shows that large-scale doctrinal change is possible under specific conditions – historical evidence that B is not absolute.

Corrective permeability (κ): Low to moderate. Doctrinal changes occur slowly (e.g., Vatican II). Sealing mechanisms (papal infallibility, sola scriptura) reduce κ. *Sola scriptura* paradoxically lowers κ at the institutional level even while increasing interpretive diversity, because it removes a central authority that could adjudicate corrections. Thus, Protestantism often exhibits fragmentation rather than unified updating.

Sealing mechanisms: "God works in mysterious ways"; appeal to mystery of faith; creeds as fixed boundaries; authority of clergy or scripture.

Vulnerability to fantasy attractor: High in some forms (e.g., fundamentalist literalism, apocalyptic sects). Mainstream denominations have higher κ through scholarship and ecumenical dialogue.

5. Islam

Core attractor: Tawhid (absolute oneness of God); Qur’an as literal word of God; prophethood of Muhammad.

Attractor type: Dissipative (requires prayer, fasting, pilgrimage, community).

Basin depth (B): Very deep for core tenets (Shahada, Qur’an’s literalness). Schools of law (madhhabs) create sub-basins with moderate depth.

Corrective permeability (κ): Low on foundational claims. The doctrine of *i’jāz* (inimitability of the Qur’an) seals against criticism of its content. Islamic legal theory includes *ijtihad* (independent reasoning) and consensus (*ijma*), allowing adaptation in jurisprudence. However, the historical “closing of the gates of ijtihad” (a contested but influential doctrine in some Sunni schools) reduced κ for legal innovation in many periods. Contemporary revival of ijtihad in some reform movements indicates that κ is not zero.

Sealing mechanisms: “Qur’an is the word of God — you cannot question it”; prophetic tradition (Hadith) authority; concept of *abrogation* (naskh) can explain contradictions but still seals.

Vulnerability to fantasy attractor: High in extremist and literalist interpretations. Mainstream Islam maintains moderate κ through scholarly tradition and mysticism (Sufism) which can open alternative channels.

6. Taoism

Core attractor: Tao (the Way); wu wei (effortless action).

Attractor type: *Conservative* for the Tao itself (requires no energy, time-symmetric, mindless) + *high-κ dissipative* action (wu wei). This dual assignment is necessary because the Tao is not a social institution but an ontological substrate.

Why the Tao qualifies as a conservative attractor:

- **Time-symmetric:** The Tao is described as constant, unchanging, and without temporal direction (*Tao Te Ching* ch. 25: "Standing alone, it changes not").
- **No energy input:** It does not require worship, sacrifice, or reinforcement.
- **Mindless:** The Tao is not a personal creator; it operates without intention ("The Tao does nothing, yet leaves nothing undone").

Wu wei as a high-κ, shallow-basin action: the sage adapts fluidly, with no fixed identity. Sealing mechanisms are absent in **philosophical Taoism (Daojia)**.

Institutional Taoism (Daojiao) — with revealed scriptures, rituals, priesthood, alchemy, and spirit cosmologies — is a separate dissipative attractor with deeper basins, lower κ, and active sealing mechanisms. The paper's high-κ assignment applies to philosophical Taoism only; religious Taoism would be scored similarly to other institutional religions (deep B, low–moderate κ). This distinction is explicitly noted in Table 1 (footnote).

Vulnerability to fantasy attractor: Low for philosophical Taoism. High for institutional forms when dogmatic.

7. Buddhism

Core attractor: Dharma (the teaching); Four Noble Truths; Nirvana.

Attractor type: Dissipative (requires practice: meditation, ethical conduct, mindfulness) plus a conservative component: **Nirvana** qualifies as a conservative attractor because it is unconditioned (no energy input), time-symmetric (outside the cycle of birth and death), and is reached rather than sustained. Mahayana introduces Buddha-nature as an immanent, active principle, but Buddha-nature functions as an ontological ground rather than a sustained practice; it does not reintroduce energy-dependence at the level of the unconditioned, thus preserving the conservative-attractor classification.

Basin depth (B): Shallow for early Buddhism. The Buddha encouraged questioning (*Kalama Sutta*). Later schools deepened basins (e.g., Pure Land's reliance on external grace, Vajrayana's secret teachings).

Corrective permeability (κ): High for **epistemic Buddhism** (personal verification). However, **institutional Buddhism** (Tibetan lineage authority, Zen master-student hierarchies, Pure Land orthodoxy) can have much lower κ, with sealing mechanisms (guru devotion, secret tantric teachings). The paper's moderate-high κ reflects this diversity; a footnote acknowledges that different schools fall at different points on the κ spectrum.

Sealing mechanisms: Appeal to "secret teachings" (Tantra) or authority of lineage masters can reduce κ. But core teachings emphasise personal verification.

Vulnerability to fantasy attractor: Moderate. Some Buddhist

modernism may seal against criticism of mindfulness as panacea, while traditional institutional forms may exhibit low κ.

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8. Confucianism

Core attractor: Li (ritual, propriety), Ren (benevolence), social harmony.

Attractor type: Dissipative attractor whose primary content concerns **social coordination** rather than doctrinal belief. It is not a new ontological class; it remains a dissipative attractor, but one that optimises role performance and ritual coordination rather than propositional truth.

Basin depth (B): Deep. Ritual order resists deviation. Violation brings shame, ostracism, loss of face.

Corrective permeability (κ): Low–moderate for core rituals. Historical evolution (Han, Neo-Confucianism, New Confucianism) shows some κ, but change occurs slowly, often under external pressure (e.g., response to Buddhist challenges, Westernisation). This externally-driven κ is weaker than endogenous κ as a resilience signal; Confucianism's κ depends on perturbations from outside the basin rather than on internal correction mechanisms, contributing to its moderate-high vulnerability to fantasy attractor formation.

Sealing mechanisms: Authority of classics (*Analects*, *Mencius*); face and shame; hierarchical structures that prevent lower ranks from correcting higher ranks.

Vulnerability to fantasy attractor: High when state-enforced orthodoxy (imperial exam system) or identity fusion ("I am a Confucian") dominates. Moderate in pluralistic contexts.

9. Comparative Table (with footnotes)

Tradition	Primary attractor	Attractor type	Basin depth (B)	κ (corrective permeability)	Sealing mechanisms	Fantasy attractor risk (conditional)[1]
Judaism	Torah, Covenant	Dissipative	Moderate	Moderate	Appeal to divine authority, community	Moderate
Christianity	Christ, Trinity	Dissipative	Deep	Low–moderate	Mystery, creeds, infallibility	High (fundamentalism)
Islam	Tawhid, Qur'an	Dissipative	Very deep	Low	Inimitability of Qur'an, ijtihad limits	High (extremism)
Taoism[2]	Tao, wu wei	Conservative + high-κ action	Shallow (philosophical)	Very high	None inherent	Low
Buddhism[3]	Dharma, Nirvana	Dissipative + conservative	Shallow (early), deeper (later)	Moderate–high	Secret teachings, lineage authority	Moderate
Confucianism	Li, Ren	Dissipative (social coordination)	Deep	Low–moderate	Tradition, face, hierarchy	Moderate–high (orthodoxy)

[1] *Conditional on interpretation / institutionalisation.*

[2] *Philosophical Taoism (Daojia) only; religious Taoism (Daojiao) has deeper basins and lower κ (comparable to mainstream Christianity: deep B, low–moderate κ).*

[3] *Epistemic Buddhism has high κ; institutional Buddhism may be lower.*

Methodology note: B and κ rankings are qualitative, derived from historical evidence: rates of schism, doctrinal revision, response to disconfirming events (e.g., heliocentrism in Christianity, archaeological findings challenging scriptural chronology in Judaism, colonial-era comparative religion exposing internal contradictions across non-Western traditions), and the presence of internal reform mechanisms. The table represents mainstream, orthodox forms; internal diversity is acknowledged in the text.

10. Conclusion

The attractor framework reveals a spectrum of dynamical properties across major religious and philosophical traditions, once we distinguish between **empirical corrigibility** (κ) and other adaptive functions. Philosophical Taoism and epistemic Buddhism approximate high-κ, shallow-basin attractors. Confucianism, Judaism, mainstream Christianity and Islam have deeper basins and lower κ, making them more resistant to change but also more stable. Some forms of Christianity and Islam exhibit high vulnerability to becoming fantasy attractors, while others maintain moderate κ through scholarly traditions.

Crucially, low κ is not automatically pathological. **Stability attractors** (introduced here as a proposed refinement) serve adaptive continuity (e.g., constitutions, cultural rituals). The pathological form – **fantasy attractor** – occurs when low κ seals against empirical reality *and* the tradition makes empirical claims that conflict with evidence (e.g., young-earth creationism, faith-based healing that contradicts epidemiological evidence). The framework does not rank traditions; it diagnoses their dynamics.

Recognising these attractor landscapes can help scholars and practitioners identify when a tradition is serving adaptive correction (updating in response to evidence) and when it has sealed itself against reality – often a useful precursor to effective dialogue or internal renewal.

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