

Neutropsychic Personality: A Neutrosophic Dynamic Open System Theory of Human Tendencies

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Abstract: Classical personality models (e.g., the Big Five, MBTI) reduce the richness of human tendencies to fixed, often binary, dimensions. Neutropsychic personality theory reconceptualises the self as a neutrosophic dynamic open system in which every trait is simultaneously present, absent, and indeterminate. By importing neutrosophic logic, where propositions possess independent degrees of truth (T), falsity (F) and indeterminacy (I), the framework yields a triadic trait model, a three layer memory architecture (conscious / aconscious / unconscious), and a dynamic evolution/neutrality/involution description of trait change.

Keywords: Neutrosophy, Personality Dynamics, Open Systems, Triadic Trait Model, Aconscious Memory, Evolution Neutrality Involution, Complex Adaptive Systems.

1. Introduction

1.1. Beyond Binary Personality: Why Science Needs a Third Value

Classical personality models [1] force complex human experience into discrete categories. A new framework rooted in neutrosophic logic [2], proposes something more honest: indeterminacy itself as a meaningful scientific datum.

Science has long grappled with the challenge of representing human personality in formal terms. From Hippocrates' four humors to the contemporary Big Five factor model [3], each framework has attempted to impose tractable structure on something that resists it — the irreducible individuality of a human mind in motion.

The dominant paradigm in personality science today relies on dimensional or categorical models that map individuals onto fixed axes. The Big Five (openness, conscientiousness, extraversion, agreeableness, neuroticism) and type-based systems like the MBTI share a common epistemic assumption: that personality can be meaningfully captured by assigning each person a position on a finite set of defined dimensions. These positions are treated, implicitly or explicitly, as stable enough to be predictive.

A person is not a point on a scale. They are a system in motion — and any model that ignores the motion misses the person.

1.2. The Problem of the Middle Ground

Consider a patient in clinical assessment who scores at the midpoint of an introversion–extraversion scale. In most frameworks, this is treated as statistical noise or methodological ambiguity. The patient is neither introvert nor extravert, and the model offers no principled way to represent this. The middle ground is a measurement problem, not a feature of reality.

But what if the middle ground is precisely where many people live? What if behavioral ambivalence, affective oscillation, and contextual flexibility — rather than being noise — are the signal? This is the central provocation of neutrosophic psychology, [4] a framework I developed a decade ago, building on my broader neutrosophic logic.

Neutrosophy formalizes a tripartite view of any proposition: it can be true (T), false (F), or neither — indeterminate (I). In personality science, this maps onto a model in which any given trait can be simultaneously present to some degree, absent to some degree, and indeterminate to some degree. These are not just philosophical glosses — they are formal quantitative components that must sum to a coherent representation of the individual.

Key Concept

In classical logic: a statement is either true or false. In neutrosophic logic: a statement has a degree of truth (T), a degree of falsehood (F), and a degree of indeterminacy (I) — all three coexist and are independently variable.

1.3. Why This Matters to Scientists Outside Psychology

For researchers in adjacent fields — cognitive neuroscience, complexity theory, computational social science, or mathematical biology — the neutropsychic model may offer a more natural vocabulary than classical trait theory. Personality, re-conceived as a *dynamic open system*, becomes amenable to the same analytical tools used to study other complex adaptive systems: phase transitions, attractors, bifurcations, and non-linear dynamics.

This paper, spanning seven sections, traces the architecture of neutropsychic personality theory from its foundational logic through its implications for memory, temperament, trait structure, and the modeling of personality change over time. We begin not with personalities, but with logic — because the change this framework proposes is, at its core, a logical one. When we allow indeterminacy to be real rather than residual, everything about how we model minds must change.

2. Neutrosophy: The Logic of the In-Between

Before we can understand the neutropsychic personality, we must understand neutrosophy — a formal logical system that treats uncertainty not as ignorance, but as ontological reality.

In classical bivalent logic, every proposition is either true or false. In fuzzy logic, a proposition can have a degree of truth between 0 and 1. Neutrosophic logic extends this further: each proposition carries three independent values — a degree of truth (T), a degree of falsehood (F), and a degree of indeterminacy (I). Crucially, these three components are not required to sum to 1, allowing for overdetermined, underdetermined, or paraconsistent representations.

I introduced neutrosophy as a generalization of dialectical thinking. Where Hegelian dialectics posits thesis (A), antithesis (anti-A), and their synthesis, neutrosophy keeps all three in permanent tension. There is no obligatory synthesis — the neutral state (NeutA) exists as a persistent, independent third term rather than a transitional stage.

Neutrosophy does not resolve the tension between opposites.
It dignifies the tension as irreducible — and formalizes it.

2.1. The Tripartite Structure: A, Anti-A, NeutA

For any concept A, neutrosophic analysis proceeds by identifying:

- A — the concept itself, with its defining properties and implications
- Anti-A — the strict negation or opposite of A, equally well-defined
- NeutA — everything that is neither purely A nor purely Anti-A: borderline cases, ambiguous instances, contextually variable manifestations.

Applied to psychology, this framework immediately reveals the poverty of binary trait descriptions. If A is "extraversion," then Anti-A is introversion. But NeutA encompasses all the cases that don't clearly resolve — the individual who is outgoing in professional settings but withdrawn socially, the person whose sociability fluctuates with mood, the culturally contextual expressions of social engagement that resist universal coding.

Formal Definition

A neutrosophic proposition P holds values (T, I, F) where T = degree of truth, I = degree of indeterminacy, F = degree of falsehood. Unlike fuzzy logic, $T + I + F$ need not equal 1, permitting representation of contradictory or overdetermined states.

2.2. Neutrosophy vs. Fuzzy Logic: A Critical Distinction

Fuzzy logic [5] allows intermediate truth values but keeps the structure binary: each proposition is some shade of true-to-false. Neutrosophy introduces a third independent axis. This matters because psychological ambivalence is not always a point on a spectrum between two poles — it can be a genuine coexistence of both poles simultaneously. A person can be both highly extraverted and highly introverted in a way that is not captured by placing them at 0.5 on an extraversion scale.

This distinction has significant implications for measurement. A neutrosophic personality assessment would record, for each trait, independent scores for the degree of trait presence, the degree of trait absence, and the degree of irreducible ambiguity. These three scores together constitute the psychological "address" of the individual with respect to that trait.

2.3. From Logic to Personality Science

The bridge from formal logic to psychological modeling is not metaphorical — it is structural. Personality theory requires a logic that can represent: (1) simultaneous, non-contradictory presence of opposing tendencies; (2) context-dependent shifts between states without loss of identity; (3) genuinely unresolvable ambiguity in behavioral disposition. Neutrosophy provides all three. The subsequent section demonstrate how these logical primitives cash out in a full theory of personality structure, memory, temperament, and change.

3. Personality as a Dynamic Open System

Neutropsychic personality theory proposes that the self is not a fixed structure but a continuously reorganizing system of tendencies — open to the environment, dynamically evolving, and irreducibly complex.

The central claim of neutropsychic theory is captured in its foundational definition:

Personality is a neutrosophic dynamic open psychological system of tendencies to feel, think, and act specific to each individual.

Each term in this definition carries precise theoretical weight.

Dynamic means personality is not a fixed set of properties but a process — one that evolves across time, context, and experience. *Open* means the system exchanges energy, information, and influence with its environment; it is not self-contained. *Neutrosophic* means the system's states include degrees of positivity, negativity, and indeterminacy simultaneously. *Systemic* means that personality components do not operate in isolation but are coupled in feedback relationships.

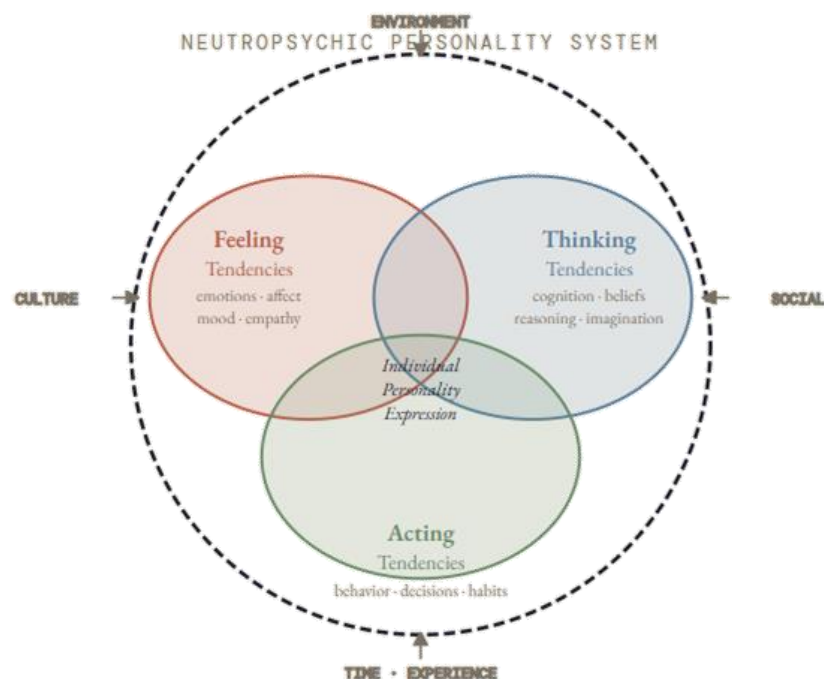


Figure 1. Neutropsychic Personality as a Dynamic Open Psychological System.

Figure 1 illustrates personality as an open system, continuously interacting with external influences and internally reorganizing its affective, cognitive, and behavioral tendencies. The overlapping regions represent integrated personality expression — the central intersection is where all three tendencies co-operate.

3.1. The Three Tendency Subsystems

The three core subsystems — feeling, thinking, and acting — are not independent modules but overlapping domains with bidirectional couplings. Emotional states shape cognitive appraisals; beliefs modulate behavioral tendencies; habitual actions reinforce or erode affective patterns. The neutropsychic model insists on representing these couplings explicitly rather than treating personality dimensions as orthogonal factors.

This is a significant departure from factor-analytic models like the Big Five, which are constructed precisely to maximize orthogonality between dimensions. While statistical independence between factors is methodologically convenient, it may be theoretically misleading — purchasing interpretability at the cost of ecological validity.

Systems Perspective

In complex systems science, an open system is one that exchanges matter, energy, or information with its environment. Closed systems tend toward equilibrium; open systems can maintain non-equilibrium states and exhibit self-organization. The neutropsychic model treats personality as the latter — not entropy-seeking but actively self-organizing.

3.2. Environmental Coupling and the Problem of Trait Stability

A persistent debate in personality science concerns the degree to which traits are stable across contexts [6]. The neutropsychic model offers a principled resolution: the underlying *tendency* may be relatively stable, while its expression varies with the environmental state. This is analogous to a physical system with stable underlying parameters but context-dependent observable states — the same magnetic field can produce different macroscopic effects depending on the medium it operates in.

External inputs — cultural context, social dynamics, accumulated experience, and temporal position in the life cycle — do not merely modulate surface behavior. They act as coupling conditions that shape which of the person's tendencies are activated, suppressed, or held in neutrosophic indeterminacy at any given moment.

4. Trait & Anti-Trait: A Triadic Model of Personality Disposition

In neutrosophic personality theory, every trait is formally paired with its opposite and between them lies a structured zone of indeterminacy that captures the real behavioral complexity of individuals.

Classical trait theory assigns each individual a score on a defined dimension high or low conscientiousness, high or low agreeableness, and so on. The implicit model is a single continuous axis between two poles, with the individual located at a point on that axis. Neutrosophic personality theory replaces this with a triadic model in which an individual simultaneously holds measurable degrees of the trait, its anti-trait, and the neutral region between them.

This is not merely a philosophical refinement. It has direct empirical implications. A person with high degrees of both a trait and its anti-trait is in a fundamentally different psychological situation than a person with moderate degrees of either the former experiences tension or compartmentalization; the latter experiences genuine moderate disposition. Collapsing both onto a midpoint score conceals important psychological variation.

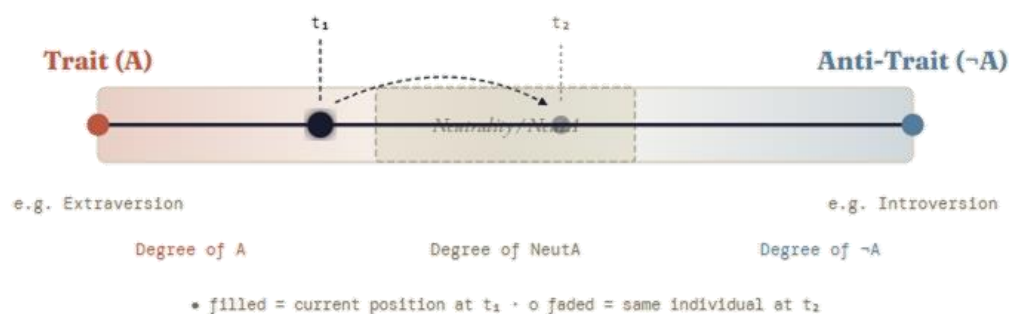


Figure 2. Neutrosophic Trait–Anti-Trait Model.

An individual simultaneously possesses degrees of Trait (A), Anti-Trait ($\sim A$), and Neutrality (NeutA). Personality is not binary but triadic and dynamic, evolving under internal and external pressures. The movement from t_1 to t_2 illustrates how a single individual's trait expression can shift over time without changing their fundamental personality architecture (see Figure 2).

4.1. Why Not Just Use a Bipolar Scale?

One might ask: isn't a bipolar scale with a midpoint equivalent to this model? The answer is no, for two reasons. First, a standard bipolar scale conflates two distinct states: (a) having moderate amounts of both trait and anti-trait, and (b) having minimal amounts of both. These look identical on a bipolar scale but represent fundamentally different psychological realities the first involves active tension, the second involves dispositional neutrality. Second, the neutrosophic model treats trait, anti-trait, and indeterminacy as independently varying quantities. This allows for cases like: high trait (0.8), high anti-trait (0.7), and low neutrality (0.1) a person with genuinely conflicting strong dispositions. No bipolar scale can represent this, because it would simply average the two highs into a moderate midpoint, erasing the very information that matters most clinically and theoretically.

Clinical Relevance

Many presentations that puzzle diagnosticians, oscillating between apparent introversion and extraversion, shifting between emotional warmth and detachment may reflect high degrees of both a

trait and its anti-trait rather than inconsistent reporting. The neutropsychic model provides a formal language for these presentations.

4.2. Implications for Personality Assessment

A neutrosophic personality assessment would require instruments capable of independently measuring trait presence, trait absence, and indeterminacy for each dimension of interest. This is methodologically demanding but not impossible. Ecological momentary assessment methods, which sample self-reports across multiple time points and contexts, provide data well-suited to fitting triadic trait models.

The resulting personality profiles would be richer: each trait represented not as a point estimate but as a triadic vector, allowing comparisons between individuals who share bipolar scale midpoints but differ fundamentally in the nature of that centrality.

5. Rethinking Memory: The Aconscious Layer and Personality Dynamics

Neutrosophic psychology introduces a third stratum of memory — the *aconscious* — that bridges the conscious and unconscious, capturing the partially accessible, dynamically shifting informational substrates of personality.

The architecture of memory in Western psychology [7, 8] has been dominated by a binary framework: conscious and unconscious. Psychoanalytic traditions elaborated this into preconscious, conscious, and unconscious — but even Freud's tripartite model treats the preconscious primarily as an intermediary stage rather than as a distinct system with its own dynamics.

Neutrosophic psychology formalizes a genuinely third stratum: the *aconscious*.

The *aconscious* is not merely the preconscious under a new name. It is defined by its neutrosophic character: it consists of contents that are neither fully accessible to conscious reflection nor fully inaccessible in the manner of classical unconscious material. Its accessibility is indeterminate — it fluctuates with context, arousal state, attentional load, and the dynamic state of the personality system as a whole.

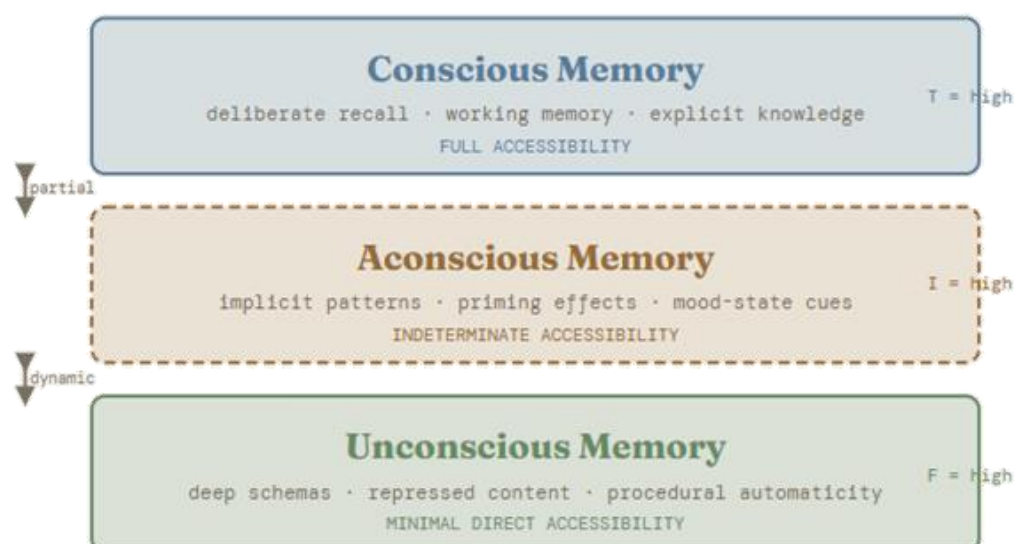


Figure 3. Refined Neutrosophic Memory Structure.

Memory is not a strict binary between conscious and unconscious (see Figure 3). The *aconscious* layer captures intermediate and fluctuating states of awareness that influence personality dynamics analogous to the indeterminate (I) value in neutrosophic logic. The bidirectional arrows indicate dynamic transitions between strata depending on context, arousal, and personality state.

5.1. *The Aconscious as the Seat of Personality Indeterminacy*

From a neutrosophic perspective, the aconscious corresponds directly to the indeterminate (I) component of the memory system. Conscious memory has high truth-accessibility (T is high); unconscious memory has high falsehood-to-direct-access (F is high); aconscious memory has high indeterminacy (I is high). The three-stratum model is therefore not merely descriptive but formally isomorphic with neutrosophic logic.

This matters for personality theory because much of what we call "personality" operates in precisely this aconscious zone.

Habitual emotional responses, interpersonal scripts, automatic evaluative reactions — these are not fully conscious (we don't deliberate about them) but nor are they fully unconscious (they can be brought to awareness, especially under reflective conditions or therapeutic intervention). They inhabit the aconscious layer, and their influence on behavior is therefore indeterminate in the formal neutrosophic sense.

5.2. *Dynamic Transitions and Personality Change*

The bidirectional arrows between memory strata in the neutropsychic model have significant implications for understanding personality change. Therapeutic processes, by this model, can be understood as facilitating upward transitions: moving material from aconscious to conscious access, allowing deliberate re-evaluation and restructuring. The difficulty of deep personality change reflects the stability of unconscious memory and the contextual dependencies governing what can transition between strata.

Neuroscience Connection

The aconscious layer finds partial correlates in contemporary neuroscience: implicit memory systems (basal ganglia, cerebellum), affective priming networks (amygdala-prefrontal interactions), and schema-level representations in associative cortex. What neutrosophic theory adds is a formal account of the accessibility gradient and its role in personality dynamics.

6. Temperament Revisited: Degrees, Not Types

Classical temperament typologies treat individuals as instances of categories [9]. Neutrosophic theory replaces this with a continuous mixture model in which every individual holds simultaneous partial memberships in multiple temperamental profiles.

The classical temperament system attributed to Hippocrates and elaborated through two millennia of medical and philosophical tradition identifies four basic types: sanguine (sociable, optimistic), choleric (energetic, task-focused), melancholic (analytical, sensitive), and phlegmatic (calm, steady). This typology has been remarkably persistent, and contemporary equivalents can be found in modern personality frameworks.

The neutrosophic critique of temperament typologies is simple but powerful: real individuals do not map cleanly onto single types. An individual may be predominantly sanguine but show choleric patterns under stress, melancholic tendencies in creative work, and phlegmatic reserves in intimate relationships. Assigning them to a single type is a lossy compression that destroys the structure of the information.

Every individual holds $s\%$ sanguine, $c\%$ choleric, $m\%$ melancholic, $p\%$ phlegmatic, a neutrosophic mixture rather than a single dominant type.

6.1. *The Neutrosophic Mixture Model of Temperament*

In the neutropsychic formulation, each individual's temperament is represented as a vector of partial memberships: $(s\%, c\%, m\%, p\%)$ where each value reflects the degree to which that temperamental profile characterizes the individual.

Unlike classical typological assignment, these values need not sum to 100% in a strict partitional sense, they reflect independent tendency degrees, consistent with the neutrosophic framework. This model is formally equivalent to fuzzy classification systems used in pattern recognition and machine learning, but it inherits the additional neutrosophic capacity to represent indeterminacy in each dimension independently. A person might have a well-defined degree of sanguine tendency but genuinely indeterminate choleric-melancholic balance, and the model can represent this rather than forcing a false resolution.

Example Profile

An individual under a neutrosophic temperament model might be characterized as: Sanguine 70%, Choleric 45%, Melancholic 30%, Phlegmatic 20% — with indeterminacy ranges on each. This captures a recognizable human complexity that single-type assignments cannot. The degrees are context-sensitive and shift across situations and life phases.

6.2. Temperament, Genetics, and Developmental Plasticity

The mixture model is consistent with contemporary behavioral genetics, which shows that temperament has a polygenic basis with multiple contributing variants, each of small effect. Rather than producing discrete temperament types, this genetic architecture naturally generates continuous variation across multiple dimensions — exactly what the neutrosophic mixture model represents.

Moreover, developmental research demonstrates that temperamental profiles change substantially across the lifespan — not only during childhood but throughout adulthood. The neutropsychic model accommodates this by treating the mixture vector as dynamic: the degrees evolve according to the same evolution/neutrality/involution dynamics that govern all personality tendencies (see section 7).

6.3. Applications: From Assessment to Intervention

Clinically and educationally, temperament mixture profiles offer more actionable information than single-type assignments. Understanding that a student is 65% melancholic and 55% choleric — with genuine indeterminacy in the sanguine dimension — suggests both strengths to leverage (analytical depth, task persistence) and vulnerabilities to support (rumination risk, frustration tolerance). No single-type label carries this information.

7. Evolution, Neutrality & Involution: The Dynamic Life of Traits

Personality traits do not simply accumulate or decay, they evolve, stabilize, and involute according to context-sensitive dynamics. Neutrosophic theory provides a formal model for this non-linear trajectory of change.

One of the most significant contributions of neutropsychic theory to the study of personality change is its formal recognition of three distinct modes of trait dynamics: evolution (increase), neutrality (stable indeterminacy), and involution (decrease). This trichotomy is not merely descriptive — it follows directly from the neutrosophic logical structure and has implications for how we model, measure, and intervene in personality change processes.

Traditional personality psychology has debated whether traits are stable or changeable, often framing this as a binary. Longitudinal studies show both substantial rank-order stability and meaningful mean-level change [10]. Neutropsychic theory dissolves this apparent contradiction: stability and change can coexist within the same framework because they operate at different levels — the underlying tendency architecture may be stable while specific tendency magnitudes evolve, stagnate, or involute.

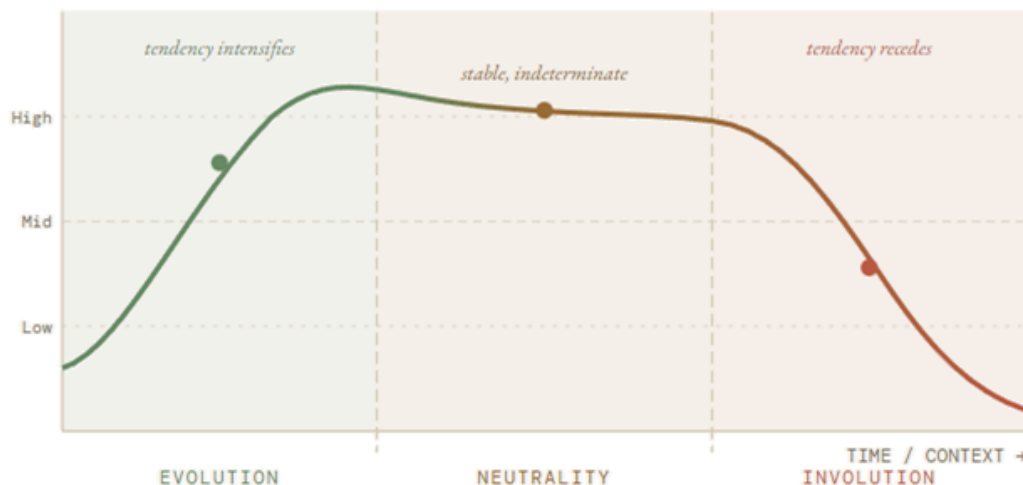


Figure 4. Dynamic Evolution of Personality Tendencies over Time.

Personality traits do not evolve linearly. They may grow (evolution), stabilize in indeterminate states (neutrality), or recede (involution) depending on context, social reinforcement, developmental stage, and internal system dynamics. The curve illustrates a trait moving through all three phases — a common pattern over a human lifespan (see Figure 4).

7.1. Evolution: Reinforcement and Adaptive Differentiation

Trait evolution: the intensification of a tendency over time, occurs through mechanisms well-documented in personality psychology: social reinforcement, identity consolidation, repeated environmental demands, and niche construction (the way individuals shape their environments to elicit trait-consistent responses). The neutropsychic model adds formal precision: evolution corresponds to an increase in the (T) component of the trait's triadic value, with corresponding decreases in indeterminacy (I) and opposition (F).

7.2. Neutrality: The Stability of Indeterminacy

The neutral phase: where a trait neither clearly strengthens nor weakens is not merely stagnation. It is a formally distinct state in which the indeterminate (I) component is high and relatively stable. This can reflect genuine equipoise between evolutionary and involutionary pressures, or it can reflect a temporary suspension of the processes that drive change. Recognizing this as a distinct state rather than measurement noise is one of the theoretical contributions of the neutropsychic framework.

7.3. Involution: Adaptive Recession and Reorganization

Trait involution: the diminution of a tendency is poorly theorized in most personality frameworks, which tend to treat trait reduction as simply the absence of evolution. The neutropsychic model treats it as an active process with its own dynamics: reduced environmental demand, deliberate suppression, competing tendency growth, or the developmental restructuring of the personality system. Involution increases the (F) component of the triadic value and may simultaneously increase indeterminacy if the involutionary process is incomplete.

Implications for Longitudinal Research

Longitudinal personality studies that model change as linear trajectories miss the discontinuities — the phase transitions between evolution, neutrality, and involution. Neutrosophic models suggest fitting piecewise or regime-switching models to longitudinal personality data, allowing detection of qualitative shifts between dynamic phases rather than estimating single average trends.

8. Conclusion

This concluding section closes the presentation but opens a set of research questions. How can neutrosophic personality profiles be reliably operationalized and measured? What statistical models are appropriate for fitting triadic trait data? How do neutropsychic dynamics relate to neurobiological substrates? What are the clinical applications of the aconscious memory model and the trait/anti-trait framework?

These are empirical questions as much as theoretical ones. Neutropsychic theory is not a closed system — it is itself an open system, inviting engagement from psychologists, cognitive neuroscientists, mathematicians, and complexity theorists. The framework provides a formal language; what it needs now is data.

Declarations

Ethics Approval and Consent to Participate

The results/data/figures in this manuscript have not been published elsewhere, nor are they under consideration by another publisher. All the material is owned by the authors, and/or no permissions are required.

Consent for Publication

This article does not contain any studies with human participants or animals performed by any of the authors.

Availability of Data and Materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Competing Interests

The authors declare no competing interests in the research.

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