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Automatic Response Configuration Theory (ARCT): A Domain-General Framework for the Automatic Configurations Underlying Behavior - Foundational Theory Paper

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Abstract: Human behavior is routinely explained through the vocabularies of cognitive appraisal, emotion, learned habit, or environmental contingency, yet the systemic organization of the automatic response pathway itself (the substrate sitting between perception and behavioral expression) is rarely treated as a unit of analysis in its own right. This paper introduces Automatic Response Configuration Theory (ARCT), an integrative theoretical framework proposing that human responses emerge from dynamically organized "response configurations" situated within a broader, persistent response architecture. These configurations vary along two foundational, static properties: configurability (the capacity to reorganize under contextual demands) and rigidity (the resistance to adaptive restructuring once activated). Together, these properties determine the probability, persistence, and flexibility of subsequent behavioral outcomes. By resolving key sequencing and structural inconsistencies found in early formulations of this theory, we present an elegant, domain-general cognitive architecture. Specifically, we eliminate circular conceptual dependencies by defining static properties before introducing the dynamic changes associated with Response Continuum Deconfiguration (RCD), a proposed mechanism of systemic change distinct from suppression, avoidance, or cognitive replacement, and distinct at a more fundamental level from classical stimulus-response accounts and from traditional connection-breaking models of behavior change: a response configuration is treated as an organized intermediary with its own structural properties rather than a strengthened stimulus-response bond, and RCD targets the point at which a configuration first forms rather than a connection it later expresses. Furthermore, we establish a precise mechanistic mapping of these properties within a foundational 7-stage cognitive pipeline, explicitly anchoring configurability and rigidity at specific transition boundaries. Finally, we resolve the epistemological tension regarding domain invariance by standardizing the framework's operational signatures into a unified 2 X 2 parameter matrix reported alongside, rather than in place of, each domain's surface content — so that the domain-general architectural claim remains checkable against the concrete behavioral differences it is meant to explain, rather than asserted independently of them. ARCT is positioned as an integrative, structurally invariant level of description. We review the relevant empirical literatures on automaticity and dual-process cognition, habit neuroscience, mindfulness-based emotion regulation, addiction and cue-reactivity, executive function and procrastination, and acute stress and cognitive flexibility to motivate ARCT's constructs. Ultimately, we model stress reactivity, anger, craving, rumination, procrastination, and decision-making as structurally analogous expressions of a single underlying architecture, opening new avenues for transdiagnostic measurement and clinical intervention. ARCT is explicitly presented as a conceptual framework requiring empirical validation, not as an established or tested theory.

Keywords: *Automatic Response Configuration Theory; Configurability; Rigidity; Response Architecture; Response Continuum Deconfiguration; Dual-Process Theory; Automaticity; Transdiagnostic Mechanisms; Dimensional Psychometrics*

1. Introduction

The explanations of human behavior tend to converge on a small set of well-established vocabularies: cognitive appraisal, emotional response, learned habit or environmental reinforcement. Each of these vocabularies has generated large and well-replicated research programs. Dual-process accounts distinguish between a fast, automatic mode of responding and a slower, deliberative one, and have wide application across social, cognitive and clinical psychology (Gawronski et al., 2024; Zucchelli et al., 2025). Habit formation has been widely characterized by low cognitive control and low sensitivity to outcome value, as contributed to by repeated stimulus-response couplings (Buabang et al., 2024; Ma et al., 2023). Research on emotion regulation has charted out how strategies like cognitive reappraisal or acceptance shift the course of an emotional response once it is underway (Raugh & Strauss, 2023; Raugh et al., 2024).

What these literatures share but rarely make explicit as a unifying object of study, is a common architectural sequence: a stimulus is registered, meaning is assigned, and a response unfolds along a pathway that can be more or less automatic and resistant to modification.

The question asked in this paper is more general than the question currently asked in any one literature: what if stress, anger, temptation, craving, rumination, procrastination, and decision-making are all based on the same automatic-response architecture? If so, their onset, persistence and modifiability across domains can be explained by the same structural properties: their configurability and the rigidity they acquire when activated. A candidate answer is provided by Automatic Response Configuration Theory (ARCT). It is deliberately domain-independent, viewing meditation, mindfulness, stress management, habit-change, and cognitive behavioral interventions as functional applications of the theory, rather than a basis for the theory.

In an effort to add academic value to this framework, this paper improves the theoretical basis of ARCT by addressing several structural inconsistencies observed in the previous conceptualizations. We first establish a strict sequence of conceptual loading in which the static properties of the response architecture are fully specified prior to the introduction of mechanisms for dynamic change. Second, we provide a fine-grained mechanistic mapping of configurability and rigidity in the framework's 7-stage cognitive pipeline. Third, the summing matrices are aligned using a mathematically consistent, domain-general formalism.

Rather than treating automaticity as a loose collection of disjointed habits and emotional outbursts, the resulting framework treats it as an invariant structural network open to precise mathematical operationalization and targeted clinical intervention.

ARCT introduces a number of constructs, and it is worth stating explicitly at the outset why: each sits at a different explanatory level and answers a question the others cannot. Response architecture specifies what persists across episodes, prior to any single response. Response configuration specifies what is active in a given moment. Configurability and rigidity are deliberately two dimensions rather than one, because the framework's central empirical claim — the domain-general matrix in Table 2 — is falsifiable only if these are independent properties rather than a single scalar. The Automatic Response Continuum and the 7-stage pipeline specify at which point in the causal sequence each property exerts its force, rather than leaving "rigidity matters" as an unlocated claim. The linear, non-linear, or hybrinear distinction specifies the shape a reorganization takes, which is a separate question from whether reorganization happens at all. Response Continuum Deconfiguration specifies the mechanism and locus of change. The measurement framework in Section 11 specifies how any of this would be detected in data and is explicitly flagged there as not yet validated. None of these constructs is a restatement of another; each closes a question the others structurally cannot. This layering is itself a testable claim rather than an assumption: if configurability and rigidity fail to behave as separable dimensions once operationalized (Section 11), or if rigidity fails to localize to a specific pipeline transition once tested empirically, that will count as evidence against this structure, not merely against one application of it.

2. Theoretical Gap

ARCT should first be distinguished from the account it most superficially resembles: classical stimulus-response (S-R) behaviorism. A strict S-R account treats behavior as the direct product of an association forged between a specific stimulus and a specific response through reinforcement history, with no internally organized structure mediating between the two (Verwey, 2023). This is not a merely historical target: even in its modern, associative dual-process form, the core empirical question remains whether habitual behavior is mediated by S-R associations rather than by internally represented goals, and recent work has argued that direct evidence for stimulus-response habits, specifically, remains harder to obtain than the framework assumes (Watson et al., 2022; de Houwer et al., 2023). ARCT departs from this account at its foundation: a response configuration is best understood as an organized, structured intermediary with its own properties (configurability and rigidity) that behave independently of any single stimulus-response pairing and that generalize across the class of stimuli and responses the configuration governs. On this view, behavior is not evidence of a connection; it is the only observable trace of a configuration that is not itself directly observable.

Current frameworks capture part of the clinical and cognitive picture. Dual-process theories posit that automatic and controlled processes produce different outputs from the same input, and recent work has refined what “automatic” and “controlled” means operationally, including meta-analytic evidence on the prefrontal correlates of inhibitory control (Gavazzi et al., 2023) and philosophical work disambiguating qualitative vs. quantitative types of processing (Augusto, R 2024). However, dual-process accounts usually are framed as a binary contrast between two separate systems, instead of the internal structure (configurability and rigidity) of a single, continuous response pathway (Gawronski et al., 2024).

Habit theory deals with a related but narrower question, namely how repeated stimulus-response associations become insensitive to the value of an outcome (Turner & Balleine, 2024). Recent work on motor-sequences and computation has demonstrated that automaticity and behavioral inflexibility evolve in parallel with training, and the relative balance of exploration and exploitation during learning determines whether a rigid or flexible response tendency is formed (Grundmann et al., 2025). This is a useful but domain-specific description." It does a good job of explaining motor and behavioral habits but was not designed to explain why an anger response, a craving, or a rumination spiral has the same qualitative signature of increasing automaticity and decreasing flexibility under pressure.

Research on emotion-regulation and mindfulness has focused on strategies for changing an emotional response once it has begun, consistent with process-model accounts that distinguish these later, response-focused strategies from earlier, antecedent-focused ones (Olderbak et al., 2023). Recent systematic reviews and meta-analyses demonstrate that mindfulness-based strategies reliably reduce emotional reactivity and enhance regulation-strategy implementation in large pooled samples (Raugh et al., 2024; Easdale-Cheele et al., 2026), with cognitive flexibility itself identified as a mediator of the benefit these interventions produce for emotional distress in recent randomized controlled trials (Wang et al., 2025).

At the same time, addiction research has documented the automatic, cue-triggered nature of craving and the partial success of interventions targeting cue-reactivity (Demina et al., 2023; Luo et al., 2023), consistent with neuroeconomic accounts of addiction as arising from altered reward and decision-making circuitry rather than a simple failure of willpower (Bickel et al., 2024), consistent with neuroimaging evidence that cue-triggered craving and its regulation recruit a specific, identifiable neural circuit rather than a diffuse response (Dieterich & Endrass, 2022). Studies of procrastination have indicated it is related more to failures in executive functioning and self-regulation rather than to laziness or poor time management (Elizondo, 2024), and neuroimaging work shows that worry and rumination, despite differing in temporal focus, recruit overlapping default-mode, salience, and frontoparietal control networks, direct evidence that phenomenologically distinct forms of repetitive negative thinking share a common underlying architecture (Puccetti et al., 2024), while cognitive accounts increasingly treat rumination itself as a self-perpetuating process disconnected from any single trigger once it is underway (Rutherford et al., 2023). Furthermore, stress research has shown that acute stress alters cognitive flexibility and capacity for emotion regulation, sometimes impairing and sometimes (depending on individual and contextual variables) temporarily improving regulatory performance (Gonzalez et al., 2024; Moriarity et al., 2023).

Each literature, in short, describes a domain-specific instance of a common pattern: an automatic response that varies in how rigid and how modifiable it is, without naming, measuring, or modeling that pattern as a general, unified construct. ARCT proposes to fill this gap.

3. Automatic Response Configuration Theory (ARCT)

According to ARCT, human responses are the product of a response architecture in constant reorganization. This is the organized substrate where discrete configurations come into being and pass between perception and their behavioural expression. A configuration is best thought of not as an isolated unit, but rather as a temporary, context-driven organization of that architecture; the architecture endures and reorganizes from one episode to the next, giving rise to whatever configuration is called for at the time.

What sets one response apart from another in terms of probability, persistence or flexibility is the degree of rigidity or configurability these formations exhibit, rather than any question of automaticity.

In this framework, automaticity is a matter of degree at the configuration level, not an on/off switch as one might infer from a rigid two-system interpretation. That accords with the view put forward by Gawronski et al. (2024) and Zucchelli et al. (2025) that such features are better seen as operating conditions that vary on a continuum than as categorical signposts of a distinct system. The theory's organizing principle is therefore that *the likelihood and form of a response depend on more than the stimulus or contextual condition alone; the rigidity and configurability of the active response configuration within the broader architecture.*

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4. Core Constructs

To prevent the circular conceptual dependencies that often undermine dynamic models of automaticity, ARCT strictly separates its baseline structural components from its dynamic change processes. This section defines the static, baseline elements of the response architecture. The primary dynamic mechanism, Response Continuum Deconfiguration (RCD), is conceptually introduced here but fully operationalized in Section 8, as its systemic actions can only be understood once these static constructs are established.

4.1 *Automatic Response Configuration*

An Automatic Response Configuration is a momentarily stable organization of mutually interacting response components within an individual system that becomes activated in relation to a class of stimuli or contextual conditions. *The configuration is not itself a stimulus–response link; rather, it represents the internally organized arrangement through which multiple cognitive, affective, physiological, motivational, and behavioral response components interact and jointly shape the resulting response*. Formed and modified through experience, such configurations may become increasingly automatic, requiring minimal deliberate control once activated. It is therefore properly understood as a temporary organization arising within the broader response architecture described in Section 3, rather than as an independent structure of its own. This is consistent with, and builds on, evidence that repeated stimulus–response pairings produce measurably faster and more automatic responding with reduced flexibility under disruption (Grundmann et al., 2025; Ma et al., 2023).

4.2 *Latent configurational intricacies*

Beneath configurability and rigidity, which describe a configuration's coarse-grained dispositional properties, a configuration is also composed of latent configurational intricacies: fine-grained, context-sensitive sub-patterns in the timing, sequencing, and co-occurrence of its constituent micro-components. These intricacies are not directly observable and are present prior to, and independently of, whether the configuration is ever expressed as a recognizable behavior (Section 4.3; Section 6, Stage 6). Conceptually, they stand to configurability and rigidity as texture stands to a surface's overall properties: configurability and rigidity describe how a configuration behaves as a whole, while its intricacies describe what it is made of at a finer grain. This construct adapts, to the level of a single response configuration, the construct of behavioral intricacy introduced for developmental assessment in the Behavioural Intricacies Analysis (BIA)

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framework, which established that behavioral meaning emerges from the configuration of interacting micro-factors rather than from isolated elements (Ramesh Kumar G S, 2025a). Operationally, latent configurational intricacies are hypothesized to be indexed by measures sensitive to the co-occurrence and sequencing of micro-level response components within a single activation of a configuration — for example, response latency, timing, and patterned recurrence within a fixed observation window — rather than by a single composite score; BIA's own operational criteria (e.g., a bounded co-occurrence window with a minimum recurrence count) offer one existing precedent for this kind of measurement, though ARCT does not assume that precedent transfers unmodified to the domains reviewed in Section 2. Consistent with Section 11's broader position that ARCT's constructs require purpose-built measurement development, this construct is introduced here at the conceptual and operational level only; its instrument-level validation is left for dedicated future work and is not assumed by any other claim in this paper.

4.3 *Automatic Response Continuum (ARC)*

The Automatic Response Continuum (ARC) describes the continuous evolution of an active response configuration across changing states of activation, organization, and expression. The concept is grounded in the broader configurational-dynamical perspective developed in the Minimum Effort Principle (Ramesh Kumar G S, 2025b), in which complex systems evolve through constrained trajectories between dynamically coherent states. Within this perspective, continuity refers to the connected evolution of a configuration across successive states rather than to movement along a necessarily linear scale. Continuity therefore does not imply linearity.

Because interacting response components may reorganize under changing conditions of coherence, instability, historical configuration, and contextual constraint, the trajectory of a response configuration may be linear, nonlinear, or hybrid (“hybrinear”) while remaining continuously connected. Successive states may consequently deviate from a common linear path without becoming discontinuous or unrelated; they remain dynamically connected as transformations of the same evolving configuration.

Threshold phenomena, including limen**,** may be examined as characteristics of detectable or functionally meaningful transitions within this continuum. The seven-stage cognitive pipeline described in Section 6 represents a proposed process architecture through which configurations may unfold; it is not itself the continuum.

4.4 *Configurability*

Configurability is defined as the capacity of a response configuration to reorganize in accordance with contextual demands (not stimulus demand alone). This construct is conceptually related to emotion-regulation flexibility, which recent work has shown to be trainable and protective against dysregulated responding, including in trauma-related contexts (Lim et al., 2025). Both configurability and rigidity, moreover, need not be outward or consciously accessible. Emotion regulation itself is now understood to operate through implicit as well as explicit pathways, with implicit strategies unfolding without deliberate control or awareness of the regulation process (Nashiro et al., 2023; Sugiura et al., 2023). ARCT proposes that configurability and rigidity behave the same way: a configuration can reorganize while remaining largely latent and non-conscious, and this reorganization need not follow a single linear trajectory: it may proceed linearly, non-linearly, or as a mixed pattern combining both within the same episode of reorganization — a pattern we term hybrinear, to distinguish it from a simple oscillation between two separate modes.

4.5 *Rigidity*

Rigidity is defined as the resistance of a response configuration to adaptive or maladaptive reorganization once activated. This property parallels findings that extensive training or chronic stress exposure reduces the capacity to shift away from an established response, evident both in motor-habit paradigms (Grundmann, C.C. et al., 2025) and in reviews of chronic stress effects on cognitive flexibility, behavioral inhibition, and working memory (Girotti et al., 2024).

4.6 *Systemic Foundations of Configurability and Rigidity*

We conceptualize the static properties of configurability and rigidity not as fixed, linear cognitive weights, but as properties of a dynamic system that can be studied using the tools of network and computational neuroscience. Within this framework, a response configuration behaves like a state a system settles into and must be actively steered out of: work on brain-network controllability shows that shifting a system's activity from its current configuration toward an alternative one is a quantifiable, effortful process that depends on how tightly a network's activity is organized around its present state, and that individuals who distribute this control more efficiently show better self-regulation (Zhou et al., 2023). This reconfiguration capacity is not fixed across time: mindfulness-based training measurably improves the efficiency

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with which the relevant executive-control and default-mode networks reconfigure over the course of training (Yue et al., 2023), and simple, validated methods now exist for quantifying this kind of network reconfiguration and node-level flexibility directly (Chinichian et al., 2023). At the level of a whole diagnostic system, an analogous logic has been formalized for psychiatric disorders as a class: clinical resilience is modeled as occupying a stable basin of attraction, and disorder as an alternative, more persistent state the system becomes trapped in largely independent of its specific symptom content (Scheffer et al., 2024). A computational account building on this same logic has since shown how content-specific symptoms can be generated from a shared, disorder-general system architecture rather than from independent, symptom-specific mechanisms (Robinaugh et al., 2024). ARCT's claim that configurability and rigidity are structural properties, rather than descriptive labels, follows this same logic at the level of a single response configuration rather than a full diagnostic system.

Under this dynamic-systems perspective, response configurations need not change smoothly. The same attractor-based framework used to model psychiatric disorders as a class predicts abrupt, disproportionate transitions — critical, tipping-point-like shifts in system state that can follow from comparatively small changes in underlying variables rather than requiring proportionally large ones (Scheffer et al., 2024; Robinaugh et al., 2024). Rigidity, on this account, is what determines how much perturbation a configuration can absorb before such a transition occurs, and network-control studies of effortful self-regulation offer one way of quantifying exactly this kind of resistance to disruption in a living system (Zhou et al., 2023). This capacity also varies systematically across development and across individuals rather than behaving as a fixed trait (Kupis & Uddin, 2023), consistent with ARCT's claim that configurability and rigidity are person- and context-dependent parameters rather than fixed properties of a given response category.

5. Fundamental Postulates

- **P1.** Every behavioral response, whether affective, cognitive, or motor, is the expression of an underlying response configuration active within the response architecture. The configuration itself is not directly observable: behavior is the only trace by which its properties can be inferred, which is why Section 11 treats configurability and rigidity as

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latent constructs requiring indirect, psychometric measurement rather than as directly observable variables.

- **P2.** Configurations vary continuously, not categorically, along the dimensions of configurability and rigidity. This departs from the traditional psychometric convention of assigning a person, or a response, to a fixed trait level or a discrete diagnostic category; ARCT instead follows the broader shift toward dimensional measurement models, which treat psychological constructs as continuous quantities rather than as categories with natural cut points (DeYoung et al., 2024; Conway et al., 2023).
- **P3.** Repetition and reinforcement increase rigidity and, beyond a threshold, decrease configurability, consistent with training-related increases in automaticity and reductions in flexibility reported in habit-formation research (Grundmann, C.C. et al., 2025; Ma et al., 2023). This is consistent with structural differences in basal ganglia circuits serving as a familial marker of reduced set-shifting flexibility, suggesting that trait-like rigidity has a detectable neuroanatomical basis (Isobe et al., 2022), and with individual differences in the relevant corticostriatal white-matter pathways predicting how successfully a routine becomes established in daily life (van de Vijver et al., 2023).
- **P4.** Acute state variables (for example, stress or high emotional arousal) can transiently shift a configuration's rigidity independently of its long-run, trait-like rigidity, consistent with evidence that acute stress can both impair and, under some conditions, temporarily reorganize regulatory performance (Gonzalez et al., 2024; Wessa et al., 2024).
- **P5.** Deconfiguration (RCD, detailed in Section 8) is possible across the lifespan and across configuration types, but its difficulty scales with rigidity, not with the domain (stress, anger, craving, procrastination) in which the configuration is expressed.

6. General Architecture

ARCT proposes that a response unfolds sequentially through a 7-stage cognitive pipeline:

[Stage 1: Stimulus Registration]

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▼

[Stage 2: Perceptual Registration]

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▼

[Stage 3: Meaning Assignment]

| ◄──────────────── [Configurability governs transition flexibility]

▼

[Stage 4: Configuration Activation]

| ◄──────────────── [Rigidity determines coupling determinism]

▼

[Stage 5: ARC Unfolding]

|

▼

[Stage 6: Behavioral Expression]

|

▼

[Stage 7: Systemic Feedback] ── (Feeds back to modify Configuration) ──► [Stage 4]

1. Stimulus Registration: An external or internal stimulus is registered by sensory receptors.
2. Perceptual Registration: Perceptual processing brings the stimulus into a form the system can act on.
3. Meaning Assignment: Cognitive appraisal situates the stimulus relative to goals, threat value, or reward value.
4. Configuration Activation: An automatic response configuration is selected and activated within the architecture.
5. ARC Unfolding: The activated configuration unfolds along the Automatic Response Continuum – continuum, and it is the configuration rather than a single fixed entity that moves along it.
6. Behavioral Expression: A discrete motor, affective, or cognitive behavior is produced / expressed as manifestation of latent response configurations.
7. Systemic Feedback: Feedback from the behavioral expression and its environmental consequences feeds back into the system, modifying the parameters of the active configuration.

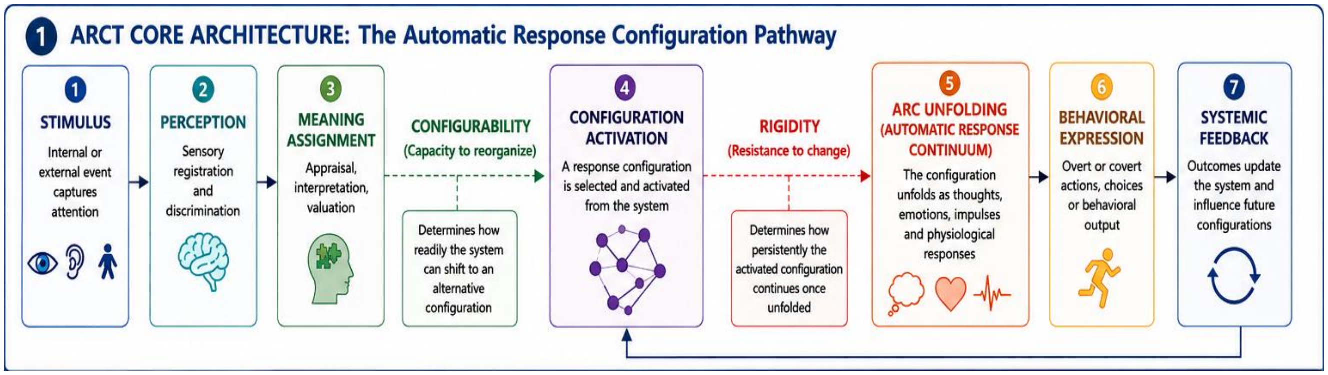

Figure 1. *Core Architecture of Automatic Response Configuration Theory (ARCT)*

The figure illustrates the proposed sequence through which an external or internal stimulus is processed through perception and meaning assignment, activates a response configuration, and unfolds into an automatic response configuration and observable behavioral or cognitive expression. Feedback from the resulting response is conceptualized as contributing to subsequent configuration activation, thereby permitting recurrent response patterns to become established and maintained.

6.1 *Alignment with Domain-Specific Models*

This general pattern of configuration follows similar (though less abstract) mechanistic processes in some areas. It maps directly to cortico-striatal models of cue-reactivity and craving in which the same process takes place from cue registration to salience attribution to a behavioral or subjective craving (Neural Correlates of Cue Reactivity, 2024), and to appraisal-based models of acute stress response in which an equivalent processing step takes place between registration of a stimulus and physiological or behavioral reactivity (Gonzalez et al., 2024).

6.2 *Precise Mechanistic Transition Mapping*

To establish a precise mechanistic mapping of these properties within this 7-stage cognitive pipeline, we specify that configurability and rigidity act at distinct, mathematically boundary-defined transition points rather than diffusing vaguely across the entire sequence:

- The flexibility and non-linearity of the transition from Stage 3 (Meaning Assignment) to Stage 4 (Configuration Activation) is mediated by whether a given appraisal of meaning initiates more than one response or whether the system is limited to a small set of configurations (Cole, 2024; Zhou et al., 2023). ARCT emphasizes on the quantification features of response components, configurability and rigidity.

- Rigidity functions as a coupling constraint that increases the persistence and determinacy with which the active configuration in Stage 4 (Configuration Activation) constrains the unfolding process in Stage 5 (ARC Unfolding) toward Stage 6 (Behavioral Expression), without implying a fixed or invariant trajectory. It is associated with the steepness of the trajectory along neural activity and how tightly the execution sequence is locked once triggered (Pang et al., 2023; Goodman et al., 2024).

Local mapping can be consistent with dynamic accounts where transitions between cognitive states are constrained by an individual's existing neural and behavioral organization, which limits jumps without passing through intervening intermediate states (Kupis & Uddin, 2023; Goodman et al., 2024).

7. Configurability–Rigidity Matrix

Crossing configurability and rigidity produces four qualitative response regions, summarized in Table 1.

Configurability ↓ / Rigidity →	Low Rigidity	High Rigidity
High Configurability	**Highly Adaptive** Responses reorganize readily in accordance with contextual demands; configurations rarely consolidate into fixed, maladaptive patterns	**Stable Yet Reorganizable** An established response resists casual disruption, but remains reachable, flexible, and modifiable through targeted, deliberate intervention.
Low Configurability	**Weakly Organized** Responses are inconsistent, poorly patterned, and fragile, exhibiting little stable structure to reorganize. The drive toward progression remains active, but responses fail to consolidate into a sufficiently stable configuration and cannot readily reorganize into an adaptive one. Continued thwarting may therefore shift effort toward repetitive processing (e.g., rumination and reassurance seeking) or withdrawal.	**Automatic Maladaptive** A fixed, cue-triggered response (a highly consolidated, low-configurability response pattern) that resists change and dominates behavior, as documented in cue-reactivity and compulsive-use research (Demina et al., 2023; Taghian et al., 2025).

The four cells represent qualitative regions within a continuous configurability–rigidity space rather than discrete psychological categories or fixed response types. A response configuration may move within a region, approach a boundary, cross between regions, or occupy an intermediate state as its organization changes over time and across contexts. The matrix therefore provides a structural but outline map of possible configurational states rather than a categorical classification system.

The continuous movement of configurations through this space is consistent with the Automatic Response Continuum (ARC), in which such changes may follow linear, nonlinear, or hybrid trajectories rather than a single predetermined path.

This matrix is offered as a heuristic for generating hypotheses—for example, that clinical presentations characterized by compulsivity should cluster in the low-configurability, high-rigidity quadrant—rather than as an empirically validated typology.

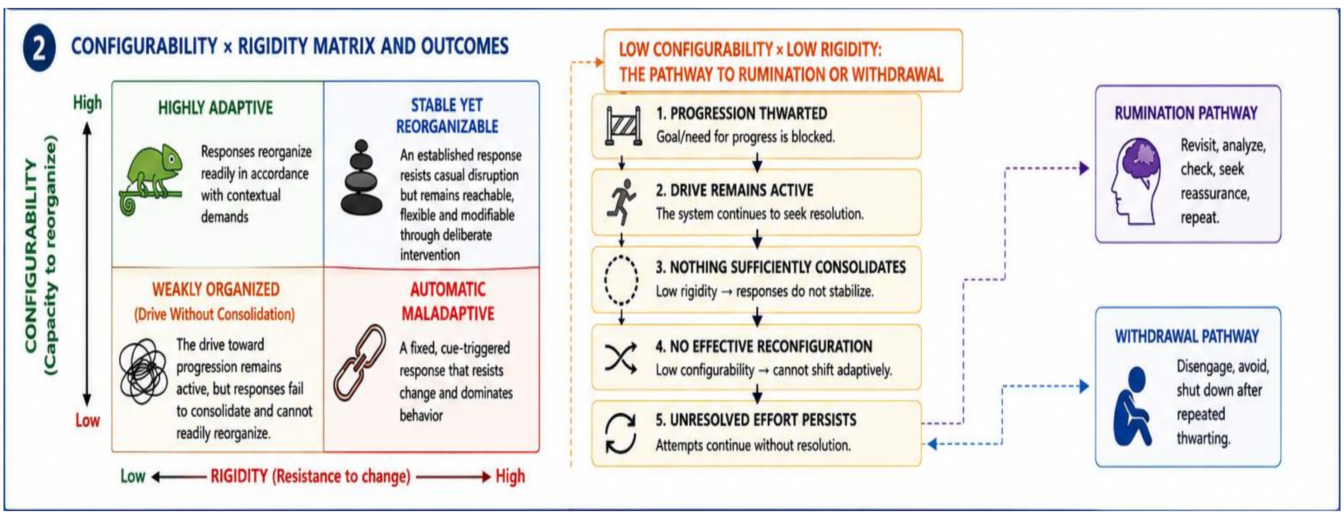

Figure 2. *Configurability–Rigidity Architecture of Response Patterns*

The matrix conceptualizes response organization as a function of two orthogonal architectural properties: rigidity, referring to the degree to which an established configuration resists change, and **configurability**, referring to the capacity to reorganize the configuration in response to contextual or internal demands. Their interaction yields four qualitative response profiles: highly adaptive, stable yet reorganizable, weakly organized, and automatic maladaptive. In the low-rigidity/low-configurability state, persistent goal-directed drive may remain active despite insufficient consolidation and ineffective reconfiguration, potentially contributing to repetitive resolution-seeking processes such as rumination or, when progression remains persistently thwarted, withdrawal

8. Response Continuum Deconfiguration (RCD) – The Dynamic Phase

After having established the static architecture and 7-stage pipeline, we can now define dynamic change. The traditional approach to changing an established response — whether framed as extinction, counterconditioning, or habit reversal — targets the connection itself: it tries to weaken or overwrite the link between a given stimulus and a given response while leaving the surrounding architecture untouched. This approach has a well-documented limitation: the original association is not erased but merely inhibited by new, competing learning, which is why extinguished responses are prone to spontaneous recovery, renewal in a new context, and reinstatement following stress or re-exposure to the original cue (Ferrara et al., 2023). RCD proposes a different point of intervention. Rather than acting on a specific stimulus-response connection after a configuration has already activated, RCD is proposed to act upstream, at Stage 4 of the pipeline (Configuration Activation) — the point at which a configuration is first assembled from the incoming stimulus and its assigned meaning, before any single response has been selected. Response Continuum Deconfiguration (RCD) refers to enabling a configuration of a response to be reconfigurable and making it less rigid in response to a given context so other, context-dependent responses can emerge within the same response architecture. On this account, change does not consist of breaking one connection and installing another; it consists of collapsing the rigidity of the response continuum itself at its point of origin, before it has organized into any particular expressed response.

RCD is negative as well as positive. It is not suppression, avoidance, emotional inhibition, or replacement. Each of those approaches leaves the underlying configuration unchanging while altering its expression or its accessibility to awareness. Meta-analyses on expressive suppression suggest that it is significantly less effective than acceptance and reappraisal in changing the trajectory of an emotion (Raugh et al., 2024).

What RCD targets, in other words, is a change in how the response configuration itself is constructed and rigidised, not merely whether the response is expressed. Such a framing is consistent with the dual-mode model of mindful emotion regulation that distinguishes “monitoring-based awareness” from “acceptance-based equanimity” as paths by which mindfulness can change the process of emotion regulation rather than mask it (Raugh & Strauss, 2023). But the 'deconfiguration of response continuum' has its root in the earlier work of the current author (Ramesh Kumar G S 2024). As established in Section 4.3, this reorganization need not be conscious or outward: configurability and rigidity can shift in a largely latent, non-conscious manner, consistent with RCD proceeding without requiring the kind of monitoring-based awareness described above (Raugh & Strauss, 2023).

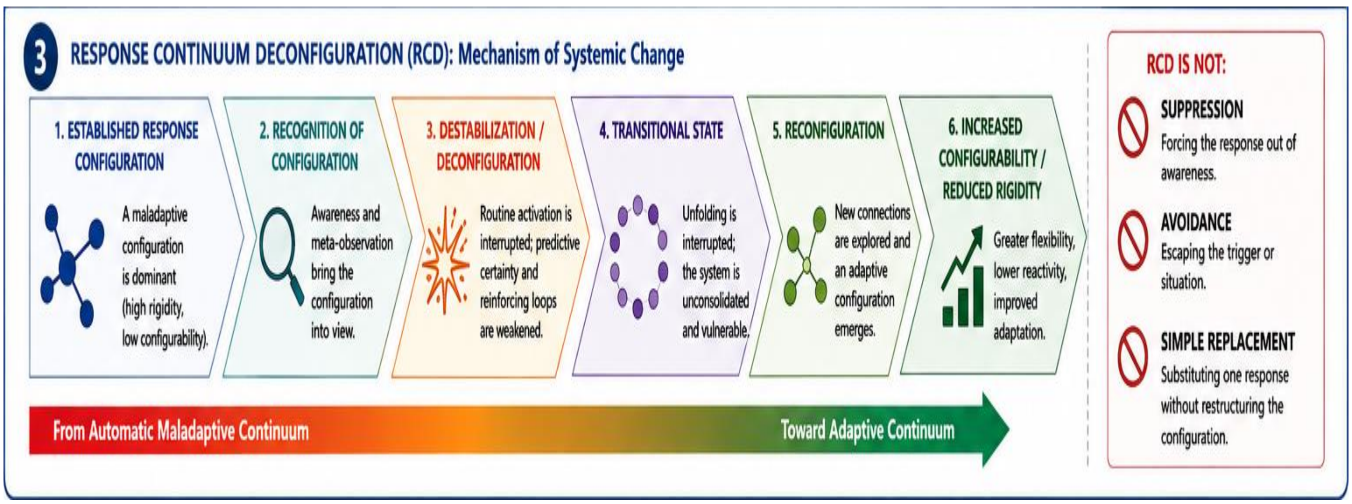

Figure 3. *Proposed Mechanism of Response Continuum Deconfiguration (RCD)*

The figure depicts RCD as a process of disrupting an established response configuration, permitting a transitional state in which the previously dominant pattern becomes less consolidated, followed by reconfiguration into alternative response organization. The model conceptualizes change as a process of deconfiguration and reconfiguration rather than simple suppression, avoidance, or direct replacement of the existing response.

8.1 *Mathematical Modeling of RCD*

The clinically clearest case of RCD—movement of an active response from a low-configurability, high-rigidity state toward a high-configurability, low-rigidity state—represents any – linear, a non-linear or hybrinear phase change or critical bifurcation in a self-organizing system. Even in this paradigmatic direction, the shift is contextual and not predetermined: whether, and how far, a configuration moves depends on state variables and boundary conditions present at the moment of deconfiguration, rather than on a fixed trajectory built into the RCD mechanism itself. Rather than the gradual decline of habit strength, the RCD process induces critical fluctuations that destabilize the active attractor basin and restructure the state space

(Scheffer et al., 2024). Once configurability and rigidity have been quantified over repeated measurement, the resulting values can be plotted to determine whether a given case's trajectory of change is linear, non-linear, or hybrinear.

RCD does not imply a movement from one configurability– rigidity region to another in a predetermined manner. Rather, it involves deconfiguration of a response configuration and its continuum formation, creating a transitional state in which alternative configurations become accessible, followed by reconfiguration. The resulting configuration may exhibit greater configurability, lower rigidity, or another contextually adaptive or maladaptive organization; the mechanism of RCD is therefore deconfiguration and reconfiguration rather than movement toward a prescribed quadrant of the matrix. Similarly, it could be either adaptive or maladaptive and largely determined by the configurational modifications taking place linearly, non-linearly or bilinearly.

This distinction is important because rigidity is not inherently maladaptive, nor is low rigidity inherently adaptive. The functional significance of a configuration depends on the relationship between rigidity, configurability, and contextual demands.

This relationship is accordingly asymmetric rather than symmetric: rigidity does not, by itself, indicate maladaptivity, but configurations that are maladaptive characteristically present as highly rigid and poorly configurable, since it is precisely their resistance to reorganization under changing demands that renders them maladaptive (or even adaptive) in context. The quadrant labels introduced in Table 1 (e.g., “Automatic Maladaptive”) should therefore be read as describing a region of the configurability–rigidity space within which maladaptive patterns characteristically cluster, not as a deterministic claim that every configuration occupying that region is maladaptive. High rigidity, for example, is also characteristic of elite motor performance and of protective, well-rehearsed safety habits, where resistance to disruption is precisely what makes the configuration functional; it becomes clinically relevant only when the same resistance to reorganization persists in contexts where the configuration no longer serves the individual’s goals.

Thus, behavioural study should be a configurational science – studying how configurations happen, modify, render and manifest as observable behavior.

When restructuring occurs, the system exhibits an extraordinary slowdown where variance is high and the recouping time is slower just before the transition, a pattern known as critical slowing down that has been formalized as part of the broader dynamical-systems account of psychiatric state changes (Scheffer et al., 2024). Understanding that changes in symptoms and behavior are caused by shifts in the system's underlying stability, then changing the properties of the continuum, rather than suppressing the output of a domain-invariant return (Robinaugh et al., 2024; Scheffer et al., 2024).

9. Domain-General Applications

If ARCT is correct, the same response architecture, not a different mechanism, should be apparent below the seemingly distinct phenomena, only with the stimulus and the content of the response configuration that elicited varying from domain to domain. Table 2 summarizes this pattern for the four literatures reviewed in Section 2.

In seeking a universal, domain-general formulation for Table 2, we ground the configurability–rigidity construct in evidence from network neuroscience rather than in a mathematical metaphor, since a genuinely relevant empirical literature already exists. Network-control studies show that the brain’s functional network can be described in terms of controllability: how easily activity can be steered toward alternative configurations given its structural connectivity, and that individuals who distribute this control more efficiently show better self-regulation (Zhou et al., 2023). This same reconfiguration process is measurably slower and more effortful precisely when it is being actively controlled rather than left to run automatically, consistent with ARCT’s claim that configurability and rigidity are properties of the transition process itself rather than of the response’s content (Zhou et al., 2023; Chinichian et al., 2023). Critically, this reconfiguration capacity is not fixed: mindfulness-based intervention measurably improves functional network reconfiguration efficiency over the course of training, in the same executive-control, default-mode, and salience networks implicated in the domains reviewed in Section 2 (Yue et al., 2023). At the level of the whole diagnostic system, an analogous pattern has been proposed for psychiatric disorders as a class: resilience is modeled as a basin of attraction, and disorder as an alternative, more rigid attractor state that the system can become trapped in independent of its symptomatic content (Scheffer et al., 2024). A structurally comparable computational account has since been formalized for a specific disorder, showing how content-specific symptoms can be generated from a shared, domain-general system architecture rather than from independent, disorder-specific mechanisms (Robinaugh et al., 2024). ARCT's domain-general claim in Table 2 is the psychological-behavioral analogue of this same pattern: a shared architectural signature, expressed through different symptomatic or behavioral content depending on domain.

By this analogy, our 2 x 2 parameter matrix maps the operational signatures across clinical and cognitive domains such that the architectural signature is proposed to remain structurally comparable even when the superficial somatic content or situational content differs (Scheffer et al., 2024; Robinaugh et al., 2024).

To express this domain-general proposition formally, ARCT treats the configurability–rigidity matrix as a two-dimensional configurational state space. An active response configuration may therefore be represented by an architectural signature,

$$A(t)=[R(t),C(t)]$$

where $R(t)$ denotes the rigidity of the active configuration and $C(t)$ denotes its configurability at time t. The four cells of the 2 × 2 matrix represent qualitative regions within this state space rather than discrete response categories. The architectural signature can therefore remain structurally comparable across domains even when the surface somatic, cognitive, motivational, or situational content differs.

In this formulation, domain generality is proposed here as a testable hypothesis rather than as mathematical invariance in the strict sense: it is the claim that heterogeneous response phenomena may exhibit comparable configurational signatures within the same rigidity–configurability space. The same representation can consequently be used to examine whether apparently distinct clinical and cognitive phenomena differ primarily in their surface content while sharing comparable underlying architectural organization.

Table 2. *Harmonized Domain-General Applications*

Domain	Surface Content (Somatic/Cognitive Input)	Architectural Signature (2 × 2 Parameter State)
Stress Reactivity	Autonomic arousal, physiological threat cues, and somatic distress (Gonzalez et al., 2024).	**Low Rigidity × High Configurability:** Acute load destabilizes baseline consolidation, transiently raising reconfiguration potential and producing rapid but volatile behavioral reorganization (Wessa et al., 2024).

Anger and Craving	Cue-induced urges, interpersonal triggers, and substance-related appetitive cues (Demina et al., 2023).	**High Rigidity × Low Configurability:** Fixed attractor-basin dominance, producing highly resistant and persistent response pathways.
Rumination and Procrastination	Cognitive self-appraisals, metacognitive loops, and academic/occupational avoidance behaviors (Elizondo, 2024).	**Low Rigidity × Low Configurability:** Attractor-state fragmentation and transition failures, leading to perseverative stalling.
Executive Decision-Making	Strategic choices, multi-attribute trade-offs, and goal-directed alternatives.	**High Rigidity × High Configurability:** A stable yet highly reorganizable manifold that resists local noise while remaining sensitive to contextual shifts.

9.1 *Phenomenological Mapping across Domains*

To understand the utility of Table 2, we trace how the architectural signature of each domain is expressed in its own phenomenology, showing that the same configurability–rigidity pattern manifests through different surface content.

Stress Reactivity: Stress can alter cognition and emotion regulation in an instant, depending on individual differences and context, less as a persistent impairment and more as a temporary consolidation response to stressors (Effects of Chronic Stress on Cognitive Function, 2024; Gonzalez et al., 2024), and therefore adaptive in some context and the same is maladaptive elsewhere. This is applicable to other behavioural trajectories and configurations too.

- Anger and Craving: These domains are highly consolidated, configuration-like, and cue reactivity-like. A certain type of action or stimulus prompts a graded, partly automatic response that mindfulness and exposure can ameliorate, although not completely (Demina et al., 2023; Luo et al., 2023).
- Rumination and Procrastination: These behaviors have been investigated in relation to executive functions and self-regulation issues, including goal setting, working memory, and inhibition, as a result of the tendency of the brain to drift back into an attractor state, rather than changing into adaptive action (Elizondo, 2024).

- Executive Decision-Making: When cognitive fatigue strikes or when the environment feels overwhelming, a rigid response to a cue is in competition with a deliberate response toward a goal, consistent with evidence that the ability to exert goal-directed control over a cue-triggered response depends on the integrity of specific cortico-striatal white-matter pathways (van Timmeren et al., 2024). This is a case study in the perpetual structural conflict of the architecture, and mindfulness practice is one route, but not the only one, to reconfiguring the architecture.

10. Testable Predictions

- Prediction 1. Response rigidity will correlate positively with independent indices of behavioral automaticity.
- Prediction 2. Configurability will predict cross-context adaptability better than trait-level automaticity alone.
- Prediction 3. RCD-consistent interventions (e.g., mindfulness-based training) will reduce measured rigidity before corresponding behavioral change becomes observable, mirroring findings that mindfulness training alters regulation-relevant neural and self-report indices prior to full symptom change (Raugh et al., 2024; Easdale-Cheele et al., 2026).
- Prediction 4. Distinct clinical presentations (e.g., substance use disorder versus generalized anxiety) will show distinguishable configurability–rigidity profiles rather than uniformly high rigidity across all response types.
- Prediction 5. Behavioral flexibility, indexed independently of the intervention itself, will mediate the effect of RCD-consistent interventions on outcome, consistent with evidence that cognitive flexibility mediates the benefit of mindfulness interventions for emotional distress in ongoing trial work (Role of Cognitive Flexibility in Mindfulness Intervention, 2023).

11. Measurement Framework

ARCT does not yet have validated instruments; developing them is a necessary next step. Because configurability and rigidity are proposed to reorganize linearly, non-linearly, or hybrinearly (Section 4.3), these measures must be capable of detecting all three patterns rather

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than assuming linear change throughout. Four measures are proposed for future development and psychometric validation, to address:

1. Automatic Response Configuration Index (ARCI) - the general tendency toward configuration-based responding.
2. Response Configuration Rigidity - to quantify the resistance of activated configurations to situational disruption.
3. Response Configuration Flexibility - intended to assess the individual's baseline capacity for configurability.
4. Response Continuum Deconfiguration Progress - to track dynamic restructuring changes over the course of therapeutic interventions.

The development of the scores should follow those of the recent work that has validated similar instruments, such as the multidimensional and psychometrically validated Compulsive Substance Use Questionnaire (Taghian et al., 2025), which is a good template for separating automaticity, craving, and continued use into different dimensions so that each is able to be independently assessed. Because ARCT's domain-general claim in Table 2 depends on configurability and rigidity meaning the same thing across stress, anger, craving, rumination, and decision-making rather than merely correlating across them, instrument development should be paired with formal measurement-invariance testing — for example, multi-group confirmatory factor analysis or alignment optimization across domain-specific samples — to establish that the two constructs are measured equivalently before any cross-domain comparison is treated as evidence for a shared architecture (Luong & Flake, 2023). A failure to establish at least partial invariance at this stage would itself be an informative, falsifiable result: it would indicate that what looks like a single domain-general construct is actually several domain-specific ones that happen to share a name.

Beyond instrument development, these four measures sit within a broader shift away from treating a construct as a single latent continuum inferred from item covariance and toward measurement approaches capable of representing within-person structure, contextual dependence, and dynamic reorganization. Contemporary network-psychometric work argues that when a psychological phenomenon is conceptualized as a dynamical system, measurement must specify what aspect of the system is being targeted — its structure, current state, expected state, vulnerability, or stable state — rather than assuming a single latent score adequately represents it (van Bork et al., 2024). Before configurability and rigidity can be tracked in this way, however, it must first be established that the theorized configurations exist as identifiable patterns in data rather than being assumed a priori: case-oriented configurational methods such as fuzzy-set Qualitative Comparative Analysis and Configural Frequency Analysis test directly whether specific combinations of components occur together more often than chance, offering a way to check whether the configurability–rigidity matrix in Table 2 corresponds to actual clusters of cases rather than a post hoc label (Cangialosi, 2023; von Eye, 2023). Once a configuration is identified, its persistence and reorganization can be tracked using person-specific dynamic network methods: recent idiographic research demonstrates substantial heterogeneity between individuals and instability of network structure within individuals, indicating that a single stationary organization should not be assumed and that situational information is essential to interpreting person-specific configurations (Hulsmans et al., 2024). Person-specific behavioral-network research likewise demonstrates the feasibility of studying psychological processes as individualized systems rather than relying exclusively on population-level associations (Beltz & Kelly, 2024), and experience-sampling studies using dynamic network methods illustrate how intensive repeated observations can capture temporally organized relationships that conventional cross-sectional assessment cannot (van den Brink et al., 2024). This approach is consistent with recent work emphasizing that the validity of idiographic networks depends on incorporating meaning and context, rather than treating nodes and their relationships as context-free statistical entities (De Smet et al., 2025), and with evidence that dynamic measurement benefits from designs that capture within-person change appropriately over repeated observation (Dejonckheere et al., 2024). Dynamic structural equation modeling work further demonstrates the importance of distinguishing within-person from between-person measurement structure and of accounting for temporal dependencies (Fang & Wang, 2024; Bond & Wickham, 2023), while person-specific network parameters have been linked directly to between-person trait change, offering one route from an idiographic model back to a trait-level score (Nissen & Beck, 2025). At the same time, idiographic dynamic networks can be severely affected by an inadequate number of observations and by overparameterization, making statistical power, predictive accuracy, and sampling design essential components of validation rather than afterthoughts (Zhang et al., 2025). Because configurability and rigidity are proposed to operate in a largely latent, non-conscious manner (Section 4.3), self-report alone is unlikely to be sufficient for

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measuring them: multimodal psychophysiological work demonstrates that single-channel EEG can dissociate cognitive effort from physiological arousal as separable signatures, with distinct profiles corroborated by cortisol and heart-rate variability in an ecologically valid field setting, illustrating one route by which configurability-like and rigidity-like properties could in principle be indexed without relying on introspective access to the response configuration itself (Maimon et al., 2026). Accordingly, the measurement object for ARCT's four proposed scales is the response configuration and its organization under specified conditions, rather than a conventional total score, with configurability and rigidity treated as properties of that configuration rather than fixed properties of the person.

12. Clinical and Applied Implications

The ARCT language provided by the research would allow for common terms in areas that currently deal with configurations by different names: psychology and psychiatry (emotion dysregulation, compulsivity), addiction treatment (craving and cue-reactivity), rehabilitation (motor and behavior habit change), executive coaching and education (procrastination, decision fatigue), and organizational behavior (workplace stress reactivity). This is consistent with the call in the mindfulness-intervention literature for a more holistic and multidisciplinary approach rather than symptom-specific protocol (Easdale-Cheele et al., 2026; Sharma et al., 2025).

13. Discussion

ARCT is best understood as an additional explanatory level rather than a competitor to existing theories. Against dual-process theory, it recasts automaticity as a graded, configurational property rather than a categorical system-membership question (Gawronski et al., 2024; Augusto, R 2024). Against habit theory, it takes that field's central insight — that repetition increases automaticity at the expense of flexibility — and extends it beyond the motor and behavioral domain where it has mostly been tested (Grundmann et al., 2025; Ma et al., 2023). Rather than competing with emotion-regulation or mindfulness models, it offers a structural explanation of what those models are already expected to change (Raugh & Strauss, 2023). And where predictive-processing or appraisal-based stress models supply a stimulus-to-response sequencing, ARCT does not replace that sequencing so much as add configurability and rigidity as properties that cut across it (Gonzalez et al., 2024).

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Because ARCT is domain-general by design, the natural next step is a coordinated program: instrument development (Section 11) establishing that configurability and rigidity are measurable and separable; followed by domain-specific tests of the Table 2 pattern in stress, anger, craving, and rumination/procrastination samples; and, contingent on those results, controlled tests of RCD-consistent interventions against existing suppression- and avoidance-based comparators. Each step is falsifiable on its own terms. A negative result at any stage (for example, configurability and rigidity failing to behave as separable dimensions) would count as evidence against ARCT rather than against any single domain application.

14. Limitations and Ethical Considerations

ARCT is currently a conceptual framework and must be evaluated as such. Its core operational definitions—configurability and rigidity in particular—require sharper, falsifiable specification before they can be directly measured. No instrument currently exists to test ARCT's predictions directly; the ARCI, RCRS, RCFS, and RCDPS proposed above are targets for future psychometric work, not existing validated tools. The domain-general claims are plausibility arguments drawn from structurally similar findings across separate literatures, and future research must establish that ARCT's constructs add predictive or explanatory value beyond those existing frameworks, rather than simply relabeling them.

In addition to these theoretical limitations, the framework possesses several inherent developmental and clinical risks:

- Contextual and Diagnostic Simplification: The strict standardization of Table 2 risks over-simplifying highly nuanced behavioral domains, potentially stripping away critical context-specific variance that clinicians rely upon in practice.
- Measurement Challenges: Accurately measuring "Configurability" as a distinct transition force solely between Stage 3 and Stage 4 presents a severe psychometric challenge, as self-reporting cognitive transitions in real-time is notoriously unreliable and may require high-resolution neuroimaging or computational behavioral tracking.
- Pathologizing Adaptive Rigidity: Ethically, universally defining "Rigidity" as a system flaw could lead to the improper pathologizing of behaviors (e.g., highly disciplined motor routines, protective cultural schemas, or hyper-vigilant cognitive schemas) that are highly adaptive in specialized or high-threat environments.

- Normative and Cognitive Biases: Because the "Meaning Assignment" stage is inherently subjective, assuming a domain-general metric for configurability might introduce normative biases that implicitly favor neurotypical or culturally dominant cognitive processing styles over marginalized, neurodivergent, or trauma-adapted styles.

15. Conclusion

The Automatic Response Configuration Theory (ARCT) proposes that automatic response organization constitutes a distinct, unified unit of psychological analysis. By addressing earlier sequencing and conceptual inconsistencies, this paper establishes a logically coherent, structurally sound framework. By re-sequencing the dynamic RCD construct to follow static architectural definitions, explicitly defining the boundaries of configurability and rigidity within a 7-stage cognitive pipeline, and standardizing its domain-general claims within a unified 2×2 parameter matrix, the ARCT framework establishes a logically specified structure suitable for formalization and empirical testing. This domain-general model provides a compelling foundation for future transdiagnostic research, clinical instrument development, and targeted behavioral interventions.

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