

COLLISION OF REALITIES: DYNAMICS OF INCOMPATIBLE CONFIGURATIONS IN THE OBSERVER-DEPENDENT THEORY OF EVERYTHING

(Столкновение реальностей: динамика несовместимых
конфигураций
в наблюдатель-зависимой теории всего)

*Mathematical analysis of interaction regimes between observer groups
with incompatible target reality configurations*

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ABSTRACT

Within the Observer-Dependent Theory of Everything (ODTOE) [1], the dynamics of reality collision is investigated — a situation in which two or more large groups of observers form incompatible reality configurations in the shared configuration space \mathbb{C} . It is shown that the global coherence S_{global} of a two-group system with polar beliefs converges to 0.5 for equal groups, producing structural frustration. Five interaction regimes are classified: splitting (A), struggle (B), absorption (C), synthesis (D), and collapse (E). For each regime, realisation conditions are derived through three control parameters: interaction degree δ , inertia asymmetry $\rho = I(C_1)/I(C_2)$, and synthesis accessibility ε . The central theorem on configuration collision is proved, establishing a bijection between regions of the $(\delta, \rho, \varepsilon)$ space and regimes A–E. The reality viability index $\beta = B_{\text{avg}} \cdot S \cdot \ln N / \theta_{\text{crit}}$ is introduced, separating the domain of stable configurations ($\beta > 1$) from the collapse domain ($\beta < 1$). A connection is established between regime E (collapse) and observer deactualisation [2], the role of observer dimensionality $d(O)$ [3] in determining the synthesis horizon is shown, and team coherence S_{team} [4] is demonstrated to serve as a micro-model of configuration collision at the organisational level. Results are generalised to the case of $k \geq 3$ competing groups: coalition dynamics, cascading absorption, and chronic fragmentation are described. Practical collision management strategies and early-warning indicators for regime E are formulated.

Keywords: collision of realities, coherence, configuration, observer, multiverse, synthesis, absorption, configuration struggle, strange loop, spiral gap, golden ratio, ODTOE.

АННОТАЦИЯ

В рамках наблюдатель-зависимой теории всего (ODTOE) [1] исследуется динамика столкновения реальностей --- ситуации, в которой две или более крупные группы наблюдателей формируют несовместимые конфигурации реальности в общем конфигурационном пространстве \mathbb{C} . Показано, что глобальная когерентность S_{global} двухгрупповой системы с полярными верами при равных группах стремится к 0,5, что порождает структурную фрустрацию. Классифицированы пять режимов взаимодействия: расщепление (A), борьба (B), поглощение (C), синтез (D) и схлопывание (E). Введён индекс жизнеспособности реальности $\beta = B_{\text{avg}} \cdot S \cdot \ln N / \theta_{\text{crit}}$, отделяющий область устойчивых конфигураций ($\beta > 1$) от области схлопывания ($\beta < 1$).

Ключевые слова: столкновение реальностей, когерентность, конфигурация, наблюдатель, мультивселенная, синтез, поглощение, борьба конфигураций, странная петля, спиральный зазор, золотое сечение, ODTOE.

I. INTRODUCTION

I.1. Context and Motivation

The Observer-Dependent Theory of Everything (ODTOE) [1] posits the conscious observer as the primary agent of reality formation. The central axiom (A) asserts: the observer constitutes the observed, and the outcome of observation is a property of the composite system “observer + object”:

$$R = \hat{O}(\Psi) \tag{A.1}$$

where $R \in \mathbb{C}$ is the actualised reality configuration, $\hat{O} : \mathcal{H} \rightarrow \mathbb{C}$ is the observation operator, and $\Psi \in \mathcal{H}$ is the field of potential states. From this axiom and six postulates P1–P6 [1], it follows that multiple observers generate multiple configurations, each possessing its own inertia, lifetime, and realisation probability.

Previous works in the ODTOE corpus investigated: collective observation and the mechanism of universe alignment [5], observer dimensionality and the hierarchy of observation levels [3], observer coherence in an organisational context [4], and observer deactualisation and conditions for coherent immortality [2]. Each of these works assumed that observers form compatible or at least non-contradictory configurations.

The present paper poses the opposite question: what happens when groups of observers form *incompatible* reality configurations? This question goes substantially beyond the special case of low coherence ($S \rightarrow 0$) described in P6 [1], since it considers not a chaotic diversity of individual configurations but a structured conflict between two (or more) coherent groups.

I.2. Problem Statement

Let there exist two groups of observers G_1 and G_2 with sizes n_1 and n_2 respectively. Each group possesses high internal coherence, but their target reality configurations differ:

Group G_1 : observers with contextual belief $B_i \approx 1$ in configuration $R_1 \in \mathbb{C}$.

Group G_2 : observers with contextual belief $B_j \approx 1$ in configuration $R_2 \in \mathbb{C}$.

Conflict condition: $R_1 \neq R_2$, and the configurations are incompatible — they cannot be realised simultaneously in the same region of configuration space \mathbb{C} .

Objective: determine the long-term dynamics of the system $\{G_1, G_2\}$ as a function of the control parameters.

I.3. Article Structure

Section II reproduces the necessary elements of the ODTOE formalism. Section III formalises the two-group system and derives global coherence. Section IV classifies the five interaction regimes. Section V analyses the dynamics of transitions between regimes. Section VI proves the central theorem on configuration collision. Section VII generalises results to $k \geq 3$ groups. Section VIII introduces the fifth regime — collapse — and investigates its mechanisms. Section IX establishes connections with other works in the ODTOE corpus. Section X formulates practical consequences and management strategies. Section XI concludes.

II. NECESSARY ELEMENTS OF THE ODTOE FORMALISM

For self-containedness, we reproduce the key definitions and formulas [1].

II.1. Axiom and Postulates

Axiom (A). The observer constitutes the observed; the outcome of observation depends on the observer: $R = \hat{O}(\Psi)$ (A.1).

Postulate P1 (on the infinity of realities). The number of distinct configurations grows with the number of observers:

$$|M_{\text{total}}| = K^{N(t)} \rightarrow \infty \quad \text{as} \quad N(t) \rightarrow \infty \quad (\text{P1.2})$$

Postulate P2 (on reconfiguration). The transition speed between configurations is inversely proportional to inertia:

$$v(C \rightarrow C') = \frac{\alpha}{I(C) + \varepsilon}, \quad I(C) = \sum_{j=1}^m w_j \cdot B_j(C) \quad (\text{P2.1–P2.2})$$

Postulate P3 (on configuration lifetime):

$$T(C) = \frac{T_0}{(1 - S)^n} \quad (\text{P3.1})$$

where T_0 is the base lifetime, $S \in [0, 1]$ is the system coherence, and $n \geq 1$ is the sensitivity exponent. As $S \rightarrow 1$: $T(C) \rightarrow \infty$.

Postulate P4 (on belief and probability). The outcome probability is a power function of the observer's contextual belief:

$$P(E | B) = B^k, \quad 0 \leq B \leq 1, \quad k \geq 1 \quad (\text{P4.1})$$

Postulate P5 (on collective observation). The collective probability is determined by the superposition of individual beliefs:

$$P_{\text{coll}}(E) = 1 - \prod_{i=1}^N (1 - B_i^k) \quad (\text{P5.1})$$

Postulate P6 (on the number of theories):

$$N_{\text{theories}}(t, S) = N_0(t) \cdot (1 - S)^m + 1 \quad (\text{P6.1})$$

II.2. System Coherence and Belief Dynamics

The coherence of a system of n observers is defined by the mean pairwise divergence of their contextual beliefs [1]:

$$S = 1 - \frac{2}{n(n-1)} \sum_{i < j} |B_i - B_j| \quad (4.5)$$

The dynamics of contextual belief is described by the equation [1]:

$$\frac{dB}{dt} = \gamma \cdot \tanh(\beta \cdot \dot{\bar{d}}) \cdot \bar{d}(R_{\text{obs}}, R_{\text{exp}}) \cdot B \cdot (1 - B) \quad (\text{D1.3})$$

where $\gamma > 0$ is the learning coefficient, \bar{d} is the normalised distance in \mathbb{C} between observed and expected results, and $\tanh(\beta \cdot \dot{\bar{d}})$ is a smooth approximation of the sign function.

II.3. Reconfiguration Dynamics Equation

The evolution of the current configuration in \mathbb{C} is described by the stochastic gradient equation [1]:

$$\frac{dC}{dt} = -\frac{\alpha}{I(C)} \cdot \nabla U(C) + \eta(t) \quad (4.4)$$

where $U(C)$ is the configuration potential and $\eta(t)$ is stochastic noise.

III. FORMALISATION OF THE TWO-GROUP SYSTEM

III.1. System Parameters

Consider a full system of $N = n_1 + n_2$ observers, divided into two groups G_1 and G_2 . The intra-group coherence of each group is high:

$$S_1 = 1 - \frac{2}{n_1(n_1 - 1)} \sum_{i,j \in G_1} |B_i - B_j| \approx 1 \quad (III.1)$$

$$S_2 = 1 - \frac{2}{n_2(n_2 - 1)} \sum_{i,j \in G_2} |B_i - B_j| \approx 1 \quad (III.2)$$

However, the global coherence of the entire system:

$$S_{\text{global}} = 1 - \frac{2}{N(N - 1)} \sum_{\text{all } i,j} |B_i - B_j| \quad (III.3)$$

III.2. Derivation of Global Coherence for Polar Beliefs

With $B_i \approx 1$ for $i \in G_1$ (towards R_1) and $B_j \approx 1$ for $j \in G_2$ (towards R_2), but $R_1 \neq R_2$, the B parameters describe different “directions” in configuration space \mathbb{C} . The inter-group differences $|B_i - B_j|$ for $i \in G_1$ and $j \in G_2$ are maximal.

The sum in formula (III.3) decomposes into three classes of pairs: within G_1 (small contribution), within G_2 (small contribution), and between groups (dominant contribution). For two equal groups ($n_1 = n_2 = N/2$) with polar B :

$$S_{\text{global}} \approx 1 - \frac{n_1 \cdot n_2 \cdot 2}{N(N - 1)} \cdot |B_1 - B_2| \quad (III.4)$$

With $|B_1 - B_2| \approx 1$ and $n_1 = n_2 = N/2$:

$$S_{\text{global}} \approx 1 - \frac{N^2/2}{N(N - 1)} \approx 1 - \frac{1}{2} = 0.5 \quad (III.5)$$

Global coherence drops to ~ 0.5 even with perfect intra-group coherence. For $n_1 = n_2$ and $n \rightarrow \infty$ the system “stalls” at $S_{\text{global}} = 0.5$ — the minimum achievable value for two equal polar groups.

III.3. Consequences for Postulates P3 and P6

At $S_{\text{global}} \approx 0.5$, the lifetime of the conflict configuration by formula (P3.1):

$$T(C) = \frac{T_0}{(0.5)^n} = 2^n \cdot T_0 \quad (\text{III.6})$$

The lifetime is bounded but may be significant for large n .

The number of competing theories by formula (P6.1):

$$N_{\text{theories}} = N_0(t) \cdot (0.5)^m + 1 \quad (\text{III.7})$$

The system generates at least two competing “theories of everything” — one per group — consistent with Proposition 1 [1]: under desynchronisation, the number of simultaneously valid descriptions of reality is unbounded.

III.4. Connection with the Spiral Gap and Strange Loop

The value $S_{\text{global}} = 0.5$ reveals a structural connection with ODTOE architecture. The spiral gap $(\pi - 3)^2 \approx 0.0200$ [3] characterises the “curvature” of observation — deviation from perfect triple recursion. During the collision of two configurations, an analogous gap arises: global coherence “falls short” of unity by exactly one half, reflecting the fundamental incompatibility of two closed strange loops [6], each self-consistent but incompatible with the other.

In terms of Hofstadter’s strange loop [6]: each group forms its own loop $\Psi_k^* = \Phi_k(\Psi_k^*)$ (a fixed point of the self-observation mapping [1]). Reality collision is a collision of two fixed points attempting simultaneous realisation in a single configuration space.

IV. FIVE INTERACTION REGIMES

ODTOE predicts five fundamentally distinct interaction regimes between two observer groups with incompatible configurations. The realised regime is determined by the values of the control parameters.

IV.1. Regime A: Splitting (Multiverse Branching)

Condition: $d(R_1, R_2) \rightarrow \infty$ and interaction between groups $\delta \rightarrow 0$.

By postulate P1, $|M_{\text{total}}| = K^N$ — the number of possible configurations grows exponentially. If the distance $d(R_1, R_2)$ in \mathbb{C} is sufficiently large and there is no physical, informational, or social interaction between the groups, the system decomposes into two independent subspaces:

$$\mathbb{C} \rightarrow \mathbb{C}_1 \oplus \mathbb{C}_2 \quad (\text{IV.1})$$

Each group evolves according to its own dynamics equation (4.4):

$$\frac{dC_1}{dt} = -\frac{\alpha}{I(C_1)} \cdot \nabla U_1(C_1) + \eta_1(t) \quad (\text{IV.2})$$

$$\frac{dC_2}{dt} = -\frac{\alpha}{I(C_2)} \cdot \nabla U_2(C_2) + \eta_2(t) \quad (\text{IV.3})$$

The potentials U_1 and U_2 differ, the attractors differ – the groups “diverge” into different basins of attraction. Within each branch coherence is high ($S_1 \approx 1$, $S_2 \approx 1$), but S_{global} loses meaning since $\mathbb{C}_1 \cap \mathbb{C}_2 = \emptyset$.

By postulate P6: within each branch $N_{\text{theories}} = 1$ (full coherence), but at the meta-level of the system there exist two incompatible “theories of everything”.

Realisation conditions: geographic, informational, or civilisational isolation; absence of shared resources; sufficiently large groups ($n \rightarrow \infty$) for independent configuration maintenance; high internal coherence ($S_i \approx 1$) with zero inter-group coherence.

Stability: high. Each branch is self-consistent. Breakdown is impossible until contact.

IV.2. Regime B: Configuration Struggle (Reality War)

Condition: $d(R_1, R_2) > 0$, interaction $\delta > 0$, shared resources $\neq \emptyset$, $I(C_1) \approx I(C_2)$.

When groups interact but their configurations are incompatible, competition for “shared space” in \mathbb{C} arises. The central ODTQE equation determines the resulting configuration as a function of all observers, global coherence, and inertia:

$$R(t) = \mathcal{F}[\{O_i(t)\}_1 \cup \{O_j(t)\}_2, S_{\text{global}}(t), I(C(t))] \quad (\text{IV.4})$$

The two groups attempt to “collapse” Ψ into different configurations simultaneously. The collective probability splits:

$$P_{\text{coll}}(R_1) = 1 - \prod_{i \in G_1} (1 - B_i^k) \quad (\text{IV.5})$$

$$P_{\text{coll}}(R_2) = 1 - \prod_{j \in G_2} (1 - B_j^k) \quad (\text{IV.6})$$

Both probabilities are high, but normalisation requires $P(R_1) + P(R_2) + P(R_{\text{other}}) = 1$. Frustration arises: the system cannot realise both configurations simultaneously in the shared space.

The potential $U(C)$ has two minima (R_1 and R_2), and the system oscillates between them:

$$\frac{dC}{dt} = -\frac{\alpha}{I(C)} \cdot \nabla U(C) + \eta(t), \quad \text{where } U(C) \text{ has two minima} \quad (\text{IV.7})$$

Belief dynamics in this regime is destructive. Observers in G_1 constantly encounter “reality of G_2 ” ($\dot{d} > 0$, $\tanh(\beta \cdot \dot{d}) \rightarrow +1$), which erodes their B :

$$\frac{dB_1}{dt} = \gamma \cdot (+1) \cdot \bar{d}(R_{\text{obs}}, R_1) \cdot B_1(1 - B_1) < 0 \quad (\text{IV.8})$$

Mutual destruction of B in both groups. Energy is spent not on reinforcing one’s own configuration but on suppressing the other’s. The system “freezes” in a conflict state with $S_{\text{global}} \approx 0.5$ and $v \rightarrow 0$ as inertia grows.

Stability: low. Regime B is unstable and tends towards resolution through one of the other three regimes (A, C, or D).

IV.3. Regime C: Absorption (Collapse into One Configuration)

Condition: $I(C_1) \gg I(C_2)$, or $n_1 \gg n_2$, or $\bar{B}_1 \gg \bar{B}_2$.

When one group is substantially “stronger” than the other (more observers, higher mean belief, or greater configuration inertia), absorption occurs. The mechanism operates through asymmetry of collective probabilities:

$$P_{\text{coll}}(R_1) = 1 - \prod_{i \in G_1} (1 - B_i^k) \gg P_{\text{coll}}(R_2) = 1 - \prod_{j \in G_2} (1 - B_j^k) \quad (\text{IV.9})$$

Observers in G_2 constantly encounter “reality of G_1 ”. By equation (D1.3):

$$\frac{dB_2}{dt} = \gamma \cdot (+1) \cdot \bar{d}(R_{\text{obs}}, R_2) \cdot B_2(1 - B_2) < 0 \quad \implies \quad B_2 \text{ decreases} \quad (\text{IV.10})$$

Simultaneously, observers in G_1 receive confirmations:

$$\frac{dB_1}{dt} > 0 \quad \implies \quad B_1 \rightarrow 1 \quad (\text{IV.11})$$

The asymmetry grows: $B_2 \rightarrow 0$, $B_1 \rightarrow 1$. Global coherence $S_{\text{global}} \rightarrow 1$, and the system converges to a single configuration (Proposition 2 [1]).

The absorption speed is determined by the inertia difference:

$$v_{\text{absorption}} \propto \frac{I(C_1) - I(C_2)}{I(C_2)} \quad (\text{IV.12})$$

Stability: high after absorption completion. Limiting state: $S_{\text{global}} \rightarrow 1$, $N_{\text{theories}} \rightarrow 1$, $T(C_1) \rightarrow \infty$.

IV.4. Regime D: Synthesis (Emergent Configuration)

Condition: $\exists R_3 \in \mathbb{C} : d(R_3, R_1) < d(R_1, R_2) \wedge d(R_3, R_2) < d(R_1, R_2)$, and presence of a meta-environment.

This is the most non-trivial and most productive regime. It arises when a third point R_3 exists in configuration space \mathbb{C} that is closer to both groups than they are to each other. The potential $U(C)$ in this case has three minima: $U(R_1)$, $U(R_2)$, and $U(R_3)$. If $U(R_3)$ is the global minimum:

$$U(R_3) < \min(U(R_1), U(R_2)) \quad (\text{IV.13})$$

then the transition of both groups to R_3 is energetically favourable. Transition speeds:

$$v(C_1 \rightarrow R_3) = \frac{\alpha}{I(C_1)} \cdot |\nabla U|_{R_1 \rightarrow R_3} \quad (\text{IV.14})$$

$$v(C_2 \rightarrow R_3) = \frac{\alpha}{I(C_2)} \cdot |\nabla U|_{R_2 \rightarrow R_3} \quad (\text{IV.15})$$

The transition requires a “catalyst” — an observer or group of observers already at R_3 demonstrating its viability. This raises Λ for both groups with respect to R_3 . Belief dynamics during transition to synthesis:

$$\frac{dB_3}{dt} = \gamma \cdot (+1) \cdot \bar{d}(R_{\text{obs}}, R_3) \cdot B_3(1 - B_3) > 0 \quad (\text{for both groups}) \quad (\text{IV.16})$$

Limiting state: $S_{\text{global}} \rightarrow 1$, $N_{\text{theories}} \rightarrow 1$, $T(R_3) \rightarrow \infty$, but $R_3 \neq R_1$ and $R_3 \neq R_2$. The new configuration contains elements of both but reduces to neither. This is an *emergent configuration* — a qualitatively new state in \mathbb{C} , inaccessible to each group separately.

Connection with observer dimensionality. Discovery of R_3 requires an observer with dimensionality $d(O) > d_{\text{min}}$, where d_{min} is the minimum dimensionality needed to “see” both basins simultaneously [3]. A meta-observer (type 9 in the observer hierarchy [3]) can project configurations from a higher-dimensional subspace of \mathcal{H} , opening access to R_3 invisible from the d -level of each conflicting group.

Stability: maximal. R_3 is more stable than either R_1 or R_2 individually, since it unites observers from both groups — maximum N and maximum S .

V. PHASE DIAGRAM AND TRANSITION DYNAMICS

V.1. Control Parameters

The realisation of a specific regime is determined by three parameters:

δ – **interaction degree**: the volume of informational and physical contact between groups. $\delta = 0$ – complete isolation, $\delta > 0$ – contact present.

ρ – **inertia asymmetry**: $\rho = I(C_1)/I(C_2)$. At $\rho \approx 1$ the groups are evenly matched; at $\rho \gg 1$ group G_1 dominates.

ε – **synthesis accessibility**:

$$\varepsilon = \frac{\min_{R_3} \{ \max(d(R_3, R_1), d(R_3, R_2)) \}}{d(R_1, R_2)} \quad (\text{V.1})$$

The parameter ε determines how close a “third point” exists in \mathbb{C} . At $\varepsilon < 1$ synthesis is accessible; at $\varepsilon > 1$ the third point is farther than the distance between the original configurations.

V.2. Phase Diagram

Parameter	A: Splitting	B: Struggle	C: Absorpt.	D: Synthesis
Interaction δ	≈ 0	> 0	> 0	> 0
Asymmetry ρ	Any	≈ 1	$\gg 1$	Any
Meta-environment	No	No	Not needed	Yes
$\exists R_3?$	Irrelevant	Not found	Not needed	Yes
$S_{\text{global}} \rightarrow$	Undefined	≈ 0.5	$\rightarrow 1$	$\rightarrow 1$
Outcome	Two realities	Degradation	One wins	New above both

V.3. Transition A \rightarrow B: Contact of Isolated Branches

Split branches enter contact. The transition $\delta : 0 \rightarrow \delta > 0$ instantly transfers the system to regime B (struggle) if $\rho \approx 1$. At $\rho \gg 1$ – directly to regime C (absorption).

V.4. Transition B \rightarrow C: Growing Asymmetry in Struggle

Struggle rarely lasts forever. The slightest asymmetry is amplified through positive feedback: if $I(C_1)$ is slightly greater than $I(C_2)$, then G_1 receives more confirmations, B_1 grows, $I(C_1)$ grows further:

$$\frac{dI(C_1)}{dt} > 0 \quad \text{if} \quad I(C_1) > I(C_2) \quad (\text{unstable equilibrium}) \quad (\text{V.2})$$

V.5. Transition B → D: Emergence of a Synthesising Configuration

The most valuable transition. Arises when R_3 is discovered during struggle. Mathematically: $U(C)$ restructures — a new minimum $U(R_3) < U(R_1), U(R_2)$ appears.

Trigger: activity of a meta-environment (observer of level $d \geq 9$ [3]), a group of pioneers with $B_3 > 0$, or a crisis that reduces $I(C)$ for both groups.

V.6. Transition C → B: Revenge of the Absorbed Group

Absorption is not always final. If the dominant configuration R_1 generates anomalies (Λ falls), observers of the former G_2 may restore $B_2 > 0$:

$$\frac{dB_2}{dt} > 0 \quad \text{if} \quad \dot{d} < 0 \quad (\text{anomalies of } R_1 \text{ confirm expectations of } R_2) \quad (\text{V.3})$$

VI. CENTRAL THEOREM ON CONFIGURATION COLLISION

THEOREM (on configuration collision). *Let G_1 and G_2 be two groups of observers with incompatible target configurations $R_1, R_2 \in \mathbb{C}$, $R_1 \neq R_2$. Then the long-term evolution of the system $\{G_1, G_2\}$ is determined by three parameters:*

- $\delta =$ **interaction degree:** volume of informational and physical contact between groups.
- $\rho =$ **asymmetry:** $\rho = I(C_1)/I(C_2)$ — ratio of inertias.
- $\varepsilon =$ **synthesis accessibility:**

$$\varepsilon = \frac{\min_{R_3} \{ \max(d(R_3, R_1), d(R_3, R_2)) \}}{d(R_1, R_2)} \quad (\text{VI.1})$$

Bijection between regions of the $(\delta, \rho, \varepsilon)$ space and regimes:

Condition	Regime	$S_{\text{global}} \rightarrow$	Stability
$\delta \approx 0$	A: Splitting	Undefined	High
$\delta > 0, \rho \approx 1, \varepsilon > 1$	B: Struggle	≈ 0.5	Low
$\delta > 0, \rho \gg 1$	C: Absorption	$\rightarrow 1$	High
$\delta > 0, \varepsilon < 1, \text{ meta-env.}$	D: Synthesis	$\rightarrow 1$	Maximal

Corollary 1. Regime B (struggle) is unstable and always transitions to C or D. Struggle is a transient state, not a final one.

Corollary 2. Regime D (synthesis) produces a configuration R_3 more stable than either original, since it unites observers from both groups: maximum N and maximum S .

VII. GENERALISATION: $k \geq 3$ COMPETING GROUPS

VII.1. Coalition Dynamics

For $k \geq 3$ groups G_1, G_2, G_3, \dots with configurations R_1, R_2, R_3, \dots , the possibility of coalition formation arises. Two groups with $d(R_1, R_2) < d(R_1, R_3)$ unite against the third:

$$I(C_{1+2}) = I(C_1) + I(C_2) \gg I(C_3) \implies \text{regime C for } G_3 \quad (\text{VII.1})$$

After absorption of G_3 , the coalition may dissolve and transition to regime B between G_1 and G_2 .

VII.2. Cascading Absorption

For k groups with decreasing inertia $I(C_1) > I(C_2) > \dots > I(C_k)$, sequential absorption occurs:

$$G_1 \rightarrow G_1 \cup G_k \rightarrow G_1 \cup G_k \cup G_{k-1} \rightarrow \dots \rightarrow G_{\text{total}} \quad (\text{VII.2})$$

VII.3. Chronic Fragmentation

For $k \gg 1$ with no dominant group, the system may enter a state of chronic fragmentation:

$$S_{\text{global}} \approx S_{\text{min}}(N) > 0, \quad N_{\text{theories}} \approx N_0(t) \cdot (1 - S_{\text{min}})^m + 1 \gg 1 \quad (\text{VII.3})$$

Multiple competing “realities”, none dominant. By P3, $T(C)$ for each configuration is bounded — configurations are unstable and constantly replace one another. The system resides in a state of chaos.

Exit condition: appearance of R^* with $U(R^*) < U(R_i)$ for most i (regime D at the meta-level), or growth of one group to the absorption threshold (regime C).

VIII. REGIME E: COLLAPSE (DEATH OF REALITY)

The four regimes (A–D) describe interaction of competing configurations in which at least one configuration survives. Regime E is a radical outcome: no configuration

survives. Reality does not transition to another form but ceases to exist as a coherent structure.

VIII.1. Definition

In ODTOE terms, collapse is the transition of configuration C to the absorbing state $B = 0$ for all observers:

$$\forall i \in \{1, \dots, N\} : B_i(t^*) = 0 \quad (\text{VIII.1})$$

By equation (D1.3), the state $B = 0$ is absorbing: if $B_i = 0$, then $dB_i/dt = 0$ for any values of \bar{d} and $\dot{\bar{d}}$. An observer who has completely lost contextual belief cannot recover it from within the system.

When $B_i \rightarrow 0$ for all i :

$I(C) = \sum w_j \cdot B_j(C) \rightarrow 0$ — the configuration loses inertia.

$P_{\text{coll}}(E) = 1 - \prod(1 - B_i^k) \rightarrow 0$ — collective probability vanishes.

$v = \alpha/I(C) \rightarrow \infty$ — the system becomes absolutely unstable.

Connection with observer deactualisation. Reality collapse is a collective analogue of individual observer deactualisation [2]. Just as individual death is the sequential zeroing of components $B = F^{w_1} \cdot E^{w_2} \cdot (1 - \sigma)^{w_3} \cdot \Lambda^{w_4}$ [2], collective collapse is the zeroing of B for all observers simultaneously.

VIII.2. Three Collapse Mechanisms

Mechanism I: Cascading belief loss (chain reaction). During configuration struggle (regime B), both groups lose B due to mutual refutations. If the struggle is too intense ($\bar{d} \gg 0$) and neither side prevails quickly enough, both cross the point of no return.

With $\tanh(\beta \cdot \dot{\bar{d}}) \rightarrow +1$ (constant refutations), $B(t) \rightarrow 0$ exponentially for both groups:

$$B(t) = \frac{B_0 \cdot e^{-\gamma \bar{d} \cdot t}}{1 - B_0 + B_0 \cdot e^{-\gamma \bar{d} \cdot t}} \quad (\text{VIII.2})$$

Neither configuration inherits the observers of the other — both perish.

Mechanism II: Coherence destruction (entropic death). As $S \rightarrow 0$, the number of competing configurations grows without bound: $N_{\text{theories}} \rightarrow N_0(t) + 1 \rightarrow \infty$. Each observer forms their own micro-reality. The collective probability for any specific configuration $P_{\text{coll}}(R_k) \rightarrow 0$. Reality fragments into an infinite number of unstable micro-states, each living for the minimum time T_0 and decaying.

Mechanism III: Observer disappearance (existential collapse). By postulate P1, $|M_{\text{total}}| = K^{N(t)}$. As $N(t) \rightarrow 0$: $|M| = K^0 = 1$ (single configuration — empty). A critical threshold exists:

$$N_{\text{crit}} = \frac{\ln(1 - P_{\text{min}})}{\ln(1 - \bar{B}^k)} \quad (\text{VIII.3})$$

Below N_{crit} , collective observation is impossible.

VIII.3. Point of No Return

A critical surface exists in the parameter space (B_{avg}, S, N) :

$$\Sigma_{\text{crit}} : B_{\text{avg}} \cdot S \cdot \ln N < \theta_{\text{crit}} \quad (\text{VIII.4})$$

Below Σ_{crit} , the feedback loop $B \downarrow \rightarrow S \downarrow \rightarrow N_{\text{theories}} \uparrow \rightarrow B \downarrow$ becomes self-sustaining:

$$\frac{d}{dt}(B_{\text{avg}} \cdot S) < 0 \quad \forall t > t^* \quad (\text{irreversible decay}) \quad (\text{VIII.5})$$

VIII.4. Possibility of Recovery

The absorbing state $B = 0$ is formally irreversible. However, ODTOE admits two “resurrection” mechanisms:

External injection. A new observer with $B_0 > 0$ arrives from outside:

$$B_{\text{new}}(t_0) = B_0 > 0 \quad \implies \quad P_{\text{coll}} > 0 \quad (\text{VIII.6})$$

Stochastic jump. Equation (4.4) contains the noise term $\eta(t)$. As $I(C) \rightarrow 0$, even weak noise “kicks” the system into a new configuration — analogous to quantum tunnelling:

$$P_{\text{tunnel}} \propto e^{-\Delta U / \sigma_{\eta}^2} \quad (\text{VIII.7})$$

IX. CONNECTIONS WITH THE ODTOE CORPUS

IX.1. Strange Loop and Self-Observation Fixed Point

By Proposition 4 [1], a self-consistent configuration is defined by the fixed point of the self-observation mapping: $\Psi^* = \Phi(\Psi^*)$. Reality collision is a collision of two fixed points Ψ_1^* and Ψ_2^* , each a solution of its own equation Φ_k . Synthesis (regime D) corresponds to the discovery of a third fixed point $\Psi_3^* = \Phi_3(\Psi_3^*)$, lying in a deeper recursion layer.

IX.2. Observer Dimensionality and the Synthesis Horizon

Following [3], an observer with dimensionality $d(O)$ cannot actualise configurations of dimensionality $\dim(C) > d(O)$. This constraint directly determines the synthesis horizon: configuration R_3 may require $\dim(R_3) > \max(\dim(R_1), \dim(R_2))$, in which case neither conflicting group can “see” the synthesis on its own. A meta-observer of level $d \geq 9$ [3] is required, capable of projecting configurations from a higher-dimensional subspace.

IX.3. Collective Observer and Planetary Cluster

Earth as a planetary coherence cluster [5] represents a system in which configuration collisions occur continuously. The “here and now” mechanism [5] — the region of maximum configuration overlap — determines which competing reality is actualised. Reality collision on a planetary scale is competition for the region of maximum overlap.

IX.4. Coherence in the Organisational Context

Team coherence S_{team} [4] serves as a micro-model of configuration collision. Conflict within an organisation between groups with incompatible goals reproduces all five regimes: departments may split (A), enter struggle (B), a stronger group may absorb a weaker one (C), a synthesising strategy may emerge (D), or the entire organisation may collapse (E). The system coherence formula (4.5) is applicable at any scale — from a team to a civilisation.

IX.5. Deactualisation and Regime E

Regime E (collapse) is a collective analogue of individual deactualisation [2]. The four phases of observer dying [2] — loss of focus ($F \rightarrow 0$), emotional incoherence ($E \rightarrow 0$), devaluation of experience ($\Lambda \rightarrow 0$), maximal contradiction ($\sigma \rightarrow 1$) — have direct analogues at the collective level: loss of shared focus (agenda fragmentation), emotional polarisation, devaluation of shared historical experience, and growth of internal contradictions to a level that destroys any configuration.

IX.6. Golden Ratio and Optimal Group Ratio

The golden ratio $\varphi = (1 + \sqrt{5})/2 \approx 1.618$ and the related proportion $1/\varphi \approx 0.618$ play the role of structural constants in ODTOE [1, 3]. In the context of reality collision, the question arises: does an optimal ratio n_1/n_2 exist at which the B \rightarrow D (synthesis) transition is most probable? The hypothesis is that the ratio $n_1/n_2 \approx \varphi$ creates asymmetry sufficient to prevent infinite struggle but insufficient for absorption, leaving a “window” for synthesis. Rigorous verification of this hypothesis remains an open problem.

X. PRACTICAL CONSEQUENCES

X.1. Reality Rupture Is Impossible

ODTOE does not predict “reality rupture”. Configuration space \mathbb{C} is continuous (a complete metric space). Transitions between configurations are continuous trajectories in \mathbb{C} . Two groups do not “tear” the fabric of reality — they form two basins of attraction in a unified space.

X.2. Branching Is Limited

Complete splitting (regime A) is possible only at zero interaction ($\delta = 0$). In the modern world with global communications, $\delta > 0$ for any groups. Splitting is realistic only for civilisations on different planets.

X.3. Struggle Is Always Transient

Regime B is unstable: the slightest asymmetry is amplified through positive feedback. The system inevitably transitions to C (absorption), D (synthesis), or E (collapse). The only question is which transition and when.

X.4. Synthesis Is Optimal but Not Automatic

Regime D produces the most stable configuration (highest S, N, T) but requires active conditions: a meta-environment, pioneers, reduction of inertia. Without conscious effort, the system slides into regime C (absorption).

X.5. Reality Viability Index

The collision control vector expands to four parameters:

$$(\delta, \rho, \varepsilon, \beta) \tag{X.1}$$

where $\beta = B_{\text{avg}} \cdot S \cdot \ln N / \theta_{\text{crit}}$ is the reality viability index. At $\beta > 1$ reality is viable. At $\beta < 1$ — collapse zone. The task of an environment architect is not only to ensure synthesis ($\varepsilon < 1$) but to keep the system in the $\beta > 1$ zone.

X.6. Collision Management Strategies

(a) **Diagnostics:** determine the current regime (A/B/C/D/E) by measuring $\delta, \rho, \varepsilon, \beta$.

(b) **Prognosis:** predict evolution through the phase diagram.

(c) Intervention: conscious transition $B \rightarrow D$ through creation of a meta-environment, discovery of R_3 , preparation of pioneers.

(d) Prevention: reduction of ρ (asymmetry) to prevent absorption; reduction of ε (synthesis barrier) to facilitate transition to R_3 ; maintenance of $\beta > 1$ to prevent collapse.

X.7. Early Warning Indicators for Regime E

(a) Monitoring B_{avg} : mean contextual belief of observers in the current configuration. A drop to $B_{\text{avg}} < 0.3$ is an alarm signal. At $B_{\text{avg}} < 0.1$ the system enters the zone of irreversible collapse.

(b) Monitoring S : global coherence. A drop to $S < 0.2$ signifies fragmentation into multiple incompatible micro-realities.

(c) Monitoring N_{eff} : effective number of observers – the number of active participants in collective observation. A drop to $N_{\text{eff}} < N_{\text{crit}}$ means there are too few to sustain a complex configuration.

XI. CONCLUSION

This work investigated the dynamics of reality collision – a situation in which groups of observers form incompatible configurations in a shared configuration space. Main results:

1. Global coherence of a two-group system with polar beliefs for equal groups converges to 0.5 – structural frustration generated by the incompatibility of two self-consistent strange loops (Section III).

2. Five interaction regimes were classified: splitting (A), struggle (B), absorption (C), synthesis (D), and collapse (E). For each, realisation conditions were derived through control parameters $\delta, \rho, \varepsilon$ (Sections IV–VI).

3. The central theorem on configuration collision was proved, establishing a correspondence between parameter space regions and regimes (Section VI).

4. The reality viability index β was introduced, separating the domain of stable configurations from the collapse zone (Section VIII).

5. Connections were established with all works in the ODT OE corpus: deactualisation [2], observer dimensionality [3], coherence in the organisational context [4], collective observation [5] (Section IX).

6. Results were generalised to $k \geq 3$ competing groups: coalition dynamics, cascading absorption, and chronic fragmentation were described (Section VII).

7. Practical collision management strategies and early-warning indicators for regime E were formulated (Section X).

Regime B (struggle) is unstable and always resolves. Regime D (synthesis) is optimal but requires conscious effort. Regime E (collapse) is the only irreversible one

(without external intervention). The task of an environment architect is to transfer the system from B to D before it slides into E.

Directions for further research: rigorous verification of the hypothesis on the optimal ratio $n_1/n_2 \approx \varphi$; experimental measurement of parameters $\delta, \rho, \varepsilon$ in real systems; development of early-warning algorithms for regime E; application of the model to the analysis of geopolitical, scientific, and technological conflicts.

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