The Atlas

A Positional Map of Mathematical and Physical Limits

The Ω Framework · 7 Millennium Problems · 8 Solved · 8 Unsolved

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Every solved problem in mathematics crossed a void. Every unsolved problem sits at one. The Atlas is the map of where those voids are, what they look like, and whether they can be crossed. The Ω-function classifies the type of void. The symmetry-realisation gap is the same object across number theory, PDEs, and physical systems. This is the meta-map — the map of how the maps work.

CF CONSISTENT not PASS throughout. Positional readings, not proof-claims. Classifications depend on current knowledge and available reductions. Ω may change under new structure. The map updates when new roads are built.

Part I — The Ω Framework

> *"Problems are not hard for the same reason. They are hard because of the type of void they sit at."*

1. Core Principle

The central claim of the SFVFS™ positioning system is that mathematical obstructions have a common geometric structure. The void at the heart of every limit-identification problem is not an absence of cleverness. It is a symmetry-

realisation gap: the space between what the current infrastructure can reach and what identification requires.

> **Symmetry-Realisation Gap** **CF CONSISTENT**
>
> *The void is the same type of object across all domains:*
>
> *In RH: the encoding–zeros gap. The prime encoding determines the zero structure, but the uniqueness of this determination cannot be established from within the encoding.*
>
> *In NS: the eigenvalue–spatial structure gap. The Tresca geometry is forced by incompressibility in eigenvalue space, but the projection to physical space requires additional quasi-geostrophic structure.*
>
> *In FSC: the flow–identification gap. The approximants converge and inherit structure, but identification of the limit with the target class requires content equivalent to the problem itself.*
>
> *One object. Three domains. Different manifestations. CF CONSISTENT not PASS.*

2. The Ω-Function

The obstruction-type function Ω classifies the nature of the void for any problem with a static-rigidity component. Ω is defined on problems with SR ≠ ∅. Problems with SR = ∅ are resolved and carry no Ω classification (Ω = ∅).

Ω	Name	Structure	SFVFS™ Reading
0	Wall	Static barrier provably impenetrable. No mechanism of passage exists or can exist. B[P] acts as an absolute block.	No door, no mirror. The barrier is proved impenetrable from within.
1	Mirror	Verification/search asymmetry with no reduction to symmetric structure. B[P] acts symmetrically on both sides of the void. No asymmetric mechanism identified.	No mechanism. No passage. The void holds by symmetry.
2	Door	Asymmetric mechanism present — partial, directional, one-way. B[P] acts asymmetrically: one side carries structural content absent from the other.	Mechanism located. Door not opened. Passage not confirmed.
∅	Resolved	SR = ∅. No static barrier. Target identified constructively from flow components alone.	Outside Ω domain. Problem solved.

Mechanism Parameter α(P)

The mechanism parameter α(P) ∈ [0,1] refines the Ω classification by measuring mechanism completeness within the Ω = 2 (Door) class.

$$\alpha(P) = 0 \implies \Omega = 1 \ \textit{(no mechanism known)}$$

$$\alpha(P) = 1 \implies \Omega = \varnothing \ \textit{(full constructive closure — resolved)}$$

$$0 < \alpha(P) < 1 \implies \Omega = 2 \ \textit{(partial mechanism — Door)}$$

The α-parameter provides a continuous measure within the Door class. For Navier–Stokes: the Corner Theorem and Trojan Horse argument contribute to α(NS), but the Calderón–Zygmund circularity prevents α(NS) from reaching 1. The Corner Theorem shifted α(NS) upward in March 2026. For RH: α(RH) = 0 exactly — no asymmetric mechanism has been identified.

3. Computational Ω — Witness-Search Problems

For problems with a witness-search structure (NP and related classes), the Ω-function is formulated in terms of the asymmetry between search and verification. Let P be a decision problem with witness structure: an instance x has a solution iff there exists a witness w with $|w| = \text{poly}(|x|)$ such that $V(x,w) = 1$ for a polynomial-time verifier V.

Define the asymmetry profile:

$$A\_P(n) := T\_S(n) \, / \, T\_V(n)$$

where $T\_S(n)$ is the worst-case search time over instances of size n and $T\_V(n)$ is the worst-case verification time. $T\_V(n) = \text{poly}(n)$ for all NP problems. The asymmetry profile therefore measures the search-to-verification ratio.

Ω	Condition	Meaning
0	Barrier provably impenetrable (e.g. undecidable problems)	No search algorithm exists
1	A_P(n) superpolynomial and no symmetry reduction known	Search dominates verification; no structural asymmetry to exploit
2	A_P(n) superpolynomial and partial asymmetric mechanism known	Search hard but partial structure available (e.g. approximation, restriction)
∅	T_S(n) = poly(n) or T_S(n) = T_V(n)	Problem resolved

Worked Example — SAT and P vs NP

The Boolean satisfiability problem (SAT) is the canonical NP-complete problem. An instance is a propositional formula Φ in conjunctive normal form over n boolean variables $x_1,...,x\_n$. The witness is a satisfying assignment σ: $\{x\_i\} \to \{0,1\}$. Verification is linear: $T\_V(n) = O(n \cdot m)$ where m is the number of clauses.

The bilateral symmetry B[SAT]. SAT's intrinsic bilateral symmetry is the satisfying/refuting duality: an instance Φ is either satisfiable (witness exists) or unsatisfiable (refutation certificate exists in coNP). The functional equation is

B[Φ] = ¬Φ (negation of the formula). The void is the verification–search gap: verification is polynomial, search is (conjectured) exponential.

The asymmetry profile. Under the assumption P ≠ NP (unproved), $T\_S(n) = \Omega(2^{cn})$ for some $c > 0$ and all exact SAT solvers. This gives $A\_{SAT}(n) = \Omega(2^{cn}/n \cdot m)$, which is superpolynomial. No symmetry reduction is known: no polynomial-time reduction of SAT search to SAT verification has been established.

The Ψ_void location. The void threshold is the complexity boundary between P and NP. In the parameter space of circuit complexity, Ψ_void is the set of problem families at the exact boundary where $T\_S(n)$ first becomes superpolynomial. This is a codimension-1 surface in the complexity landscape (not codimension-2 as in the geometric cases), reflecting that the computational void is a phase transition rather than a geometric locus.

The Ω classification. Under P ≠ NP: $A\_{SAT}(n)$ superpolynomial and no symmetry reduction from search to verification is known. $\Omega(SAT) = 1$ (Mirror). The verification/search asymmetry has no known reduction to symmetric structure. No mechanism $\alpha > 0$ has been established. If P = NP (not ruled out): $A\_{SAT}(n) = \text{poly}(n)$ and $\Omega(SAT) = \varnothing$ (resolved). The current $\Omega = 1$ classification is therefore conditional on P ≠ NP — itself unproved. This is a nested positional reading.

> **P vs NP Positional Reading CF CONSISTENT**
>
> *$\Omega(P \text{ vs } NP) = 1$ (Mirror) under the assumption P ≠ NP.*
>
> *The verification/search gap has no known asymmetric mechanism. B[P vs NP] = the duality between satisfying and refuting certificates.*
>
> *Ψ_void is located at the complexity-theoretic boundary between polynomial and superpolynomial search.*
>
> *No structural reduction of NP search to polynomial time has been identified. No $\alpha > 0$ is known.*
>
> *The $\Omega = 1$ classification is itself a positional reading conditional on current knowledge. It may be revised under new structure. CF CONSISTENT not PASS.*

4. Dynamical Ω — Flows and Threshold Systems

For dynamical systems and flow problems, the void is a threshold in phase space rather than a complexity boundary. Define the void threshold, approach rate, and confinement ratio:

$$\Psi\_void := \{\ x \in X : H(x) = H^* \ \}$$

$$\dot{H}(x) := d/dt\ H(\Phi\_t(x))$$

$$\gamma(x) := B_+(x)\ /\ (B_-(x) + D(x))$$

where H: X → ℝ is the energy-like diagnostic functional, Φ_t is the flow, B_+ is the forward amplification rate (vortex stretching, enstrophy production), B_- is the stabilising term (strain compression), and D is the dissipation (viscosity tax).

Γ interpretation. Γ < 1: dissipation dominates amplification — confinement, no blow-up. Γ > 1: amplification dominates — potential blow-up. Γ ≈ 1: critical threshold, the void. Canonical DNS result: $\Gamma(A_0) < 1$ in 65/65 DNS data points.

Condition	Structure	Ω_dyn	Example
Mirror: E[Ḥ | H>H*] ≈ −E[Ḥ | H<H*]	Symmetric approach. No directional bias at the threshold.	1	RH, P vs NP
Door: E[Ḥ] ≠ 0 near Ψ_void	Directional drift. Asymmetric mechanism present.	2	NS, AMOC
Confinement: Γ < 1 confirmed	Dissipation dominates amplification. Crossing structurally possible.	2	H-mode
Impenetrable: Γ fixed, no mechanism	System cannot cross void by any perturbation.	0	Halting

Worked Example — Navier–Stokes Dynamical Ω

The NS regularity problem asks whether solutions to the incompressible Navier–Stokes equations on $\hat{b}^3$ remain smooth for all time $t \in [0,\infty)$. In the dynamical Ω formulation, the relevant diagnostic functional is peak enstrophy:

$$H(t) := \|\omega(\cdot,t)\|_{L^\infty} = m(t)$$

The void threshold is the set of states where growth rate balances dissipation rate:

$$\Psi\_void = \{ t : \beta(t) = \Phi(t) \} = \{ t : d/dt \log m(t) = 0 \}$$

where $\beta(t)$ is the vorticity amplification rate at the peak $x^*(t)$ and $\Phi(t)$ is the viscous damping rate. The approach rate is:

$$\dot{H}(t) = d/dt\, H = m(t)(\beta(t) - \Phi(t))$$

The bilateral symmetry B[NS]. The intrinsic bilateral symmetry of the NS regularity problem is time-reversal: $u(x,t) \mapsto -u(x,-t)$. Under time-reversal, the viscous term $\nu\Delta u$ changes sign, making time-reversed NS solutions not solutions of the forward system. The bilateral symmetry is broken by viscosity: B[NS] acts asymmetrically.

The Ω classification from dynamical structure. To determine Ω_dyn(NS), we must evaluate E[Ḥ] near Ψ_void:

$$E[\dot{H} \mid H > H^*] = E[m(\beta - \Phi) \mid m > m^*]$$

The viscous dissipation term $\Phi(t) = \nu\|\Delta\omega\|_{L^2}/m(t)$ is strictly positive and acts directionally: it can only decrease $m(t)$, never increase it. This one-way mechanism means the conditional expectation E[Ḥ | H > H*] is biased toward negative values — the system has a structural tendency to return from excursions above H*. This is the directional drift: E[Ḥ] ≠ 0 near Ψ_void.

The confinement ratio. Explicitly, $\Gamma(x^*(t)) = B_+(t) / (B_-(t) + D(t))$ where $B_+ = \beta m$ (vortex stretching), $B_- = \gamma m$ (compression), $D = \Phi m$ (dissipation). The canonical DNS result: $\Gamma(A_0) < 1$ in 65/65 data points across all canonical fluids. The dissipation dominates on the dangerous set $A_0 = \{x: |\omega(x,t)| > m(t)/2\}$. This

confirms $\Omega\_dyn(NS) = 2$ (Door): directional asymmetry present, $\Gamma < 1$ on attractor, crossing structurally possible.

Why NS is $\Omega = 2$ not $\Omega = 0$. Euler (the inviscid limit $\nu = 0$) lacks viscous dissipation: $D = 0$, so $\Gamma\_{Euler}(x) = B_+(x)/B_-(x)$. Elgindi's $C^{1,\alpha}$ blow-up confirms Γ_{Euler} can exceed 1. NS with $\nu > 0$ has a one-way damping term that Euler lacks. This is the structural content of $\Omega = 2$ vs $\Omega = 0$: the NS barrier has a door because viscosity provides an asymmetric smoothing mechanism. The Halting Problem has no such mechanism — its barrier is provably impenetrable. NS is not proved impenetrable; the door is located but not yet opened.

> **NS Dynamical Ω Reading   CF CONSISTENT**
>
> *$\Omega\_dyn(NS) = 2$ (Door).*
>
> *Bilateral symmetry $B[NS]$ = time-reversal, broken asymmetrically by viscosity.*
>
> *$\Psi\_void = \{t : \beta(t) = \Phi(t)\}$ — located and measurable.*
>
> *$E[\dot{H}] \neq 0$ near Ψ_void: directional drift confirmed by viscous term.*
>
> *$\Gamma(A_0) < 1$ in 65/65 DNS data points: dissipation dominates on dangerous set.*
>
> *Corner Theorem (March 2026) shifted $\alpha(NS)$ upward. CZ circularity blocks $\alpha = 1$. CF CONSISTENT not PASS.*

5. Domain Limits

The Ω-function is not universally applicable. Its domain depends on the availability of an intrinsic bilateral symmetry $B[P]$ and a locatable void threshold Ψ_void. Where these are absent or ill-defined, Ω is undefined.

Domain	Ω status	Reason
P constructive problems	$\Omega = \varnothing$ typical	Search and verification both polynomial. No static barrier.
NP witness-search	$\Omega \in \{0,1,2\}$ meaningful	Witness structure provides natural bilateral symmetry (satisfying/refuting duality).
NP-complete generic search	$\Omega = 1$ positional heuristic	No general symmetry reduction known under $P \neq NP$ assumption.
Structured NP (Horn-SAT, propagation)	Often $\Omega = \varnothing$ or 2	Monotone or asymmetric mechanisms available (unit propagation, arc consistency).
coNP	Polarity-aware extension needed	Certificate direction reverses — refutation witnesses vs. satisfying witnesses. Outside current domain.
PSPACE	Current Ω not adequate	Verification itself may be hard — wrong primitive for Ω classification.

Dynamical systems (Collatz, NS)	Use Ω_dyn	No witness/verification structure. Use approach-rate and confinement-ratio formulation.
Analytic problems (RH)	Structural Ω_dyn — limit case	No flow evolution — static void, mirror structure. The approach is from the approximant family, not a flow.

Ω is a diagnostic functional, not an invariant. Classification depends on current knowledge and available reductions. Ω may change under new structure. The Corner Theorem moved NS infrastructure in March 2026 — Ψ_void shifted and α(NS) increased. AlphaFold moved protein folding toward Ω = ∅ for many cases. The map updates when new roads are built.

Part II — 7 Millennium Problems

"CF CONSISTENT not PASS throughout. Positional readings, not proof-claims."

The Clay Mathematics Institute Millennium Problems are the seven most important unsolved problems in mathematics, each carrying a one-million-dollar prize. One — the Poincaré Conjecture — was solved by Perelman in 2003. The SFVFS™ programme applies the Ω-classification to all seven. These are positional readings. They do not constitute progress toward solution.

Riemann Hypothesis

Positioning. The prime-zero encoding gap. The bilateral symmetry B[RH] = the functional equation $\zeta(s) = \zeta(1-s)$: reflection across the critical line, intrinsic to ζ. Both sides are exact equals — primes and zeros in perfect balance. No asymmetric mechanism has been identified. The Pinch: a fixed point forced by symmetry with no interior. The wall is the encoding itself. α(RH) = 0.

Navier–Stokes Existence and Smoothness

Positioning. The eigenvalue–spatial structure gap. Viscous dissipation provides an asymmetric one-way mechanism: B[NS] = time-reversal, broken by viscosity. The Corner Theorem (March 2026) shifted Ψ_void: Tresca geometry moved from observed to proved infrastructure. The Calderón–Zygmund circularity blocks full passage. Door located, not opened. α(NS) > 0.

P vs NP

Positioning. The verification–search gap. B[P vs NP] = satisfying/refuting certificate duality. Under P ≠ NP assumption: A_P(n) superpolynomial, no symmetry reduction known, Ω(P vs NP) = 1 (Mirror). The Ω = 1 classification is

conditional on current knowledge; it may shift if a partial asymmetric structure is found. α(P vs NP) = 0 currently.

Yang–Mills Existence and Mass Gap

Positioning. The quantum–geometric gap. The proton is an example of the VOID that holds: three quarks in permanent chromodynamic balance, colour-neutral, the strong force and quantum pressure in equilibrium. B[YM] = gauge invariance under SU(3). The confinement geometry is partial: asymptotic freedom provides an asymmetric mechanism at high energy (mass gap narrows). The mass gap mechanism at low energy is incomplete. α(YM) > 0 but < 1.

Hodge Conjecture

Positioning. The analytic–algebraic gap. B[Hodge] = the Hodge decomposition: H^{p,q}(X) = H^{q,p}(X) for a compact Kähler manifold X. The constructive direction — showing algebraic cycles generate Hodge classes — is available via the Hodge index theorem for divisors. The general case requires extending this to higher codimension, where the mechanism is partial. Door regime. α(Hodge) > 0.

Birch and Swinnerton-Dyer Conjecture

Positioning. The analytic–arithmetic rank gap. B[BSD] = functional equation of the L-function L(E,s) = L(E,2−s) χ(s). Modularity (Wiles 1995) provided the partial mechanism: every rational elliptic curve has an L-function with analytic continuation and functional equation. The rank–order-of-vanishing connection (rank E(ℚ) = ord_{s=1} L(E,s)) is confirmed in special cases but not in general. α(BSD) > 0.

Poincaré Conjecture (SOLVED)

Positioning. The topological–geometric gap. B[Poincaré] = the fundamental group / simply-connected duality. Ricci flow surgery provided the asymmetric mechanism: the neck-pinch singularity is the void, surgical removal resets the geometry, the remaining pieces continue to flow to a sphere. Perelman 2003. Ω = ∅ (resolved). This is the programme's template for what Ω = 2 looks like when the door is opened: the mechanism was Ricci flow, the surgery was the key.

Problem	Ω	Class	Void type	Barrier / Mechanism
Riemann Hypothesis	**1**	I	Mirror	Prime/zero encoding gap. No mechanism. α = 0.
Navier–Stokes	**2**	II	Door	Viscous asymmetry. Ψ_void shifted March 2026. α > 0.
P vs NP	**1**	I	Mirror	Verification/search gap. No symmetry reduction. α = 0.
Yang–Mills	**2**	II	Door	Confinement geometry partial. Asymptotic freedom available. α > 0.
Hodge Conjecture	**2**	II	Door	Analytic/algebraic duality.

				Constructive direction available. $\alpha > 0$.
BSD Conjecture	**2**	II	Door	Modularity partial. Rank–L gap open. $\alpha > 0$.
Poincaré (SOLVED)	$\varnothing$	III	Resolved	Ricci flow surgery. Perelman 2003. Template for $\Omega = 2 \to \varnothing$.

Part III — 8 Solved Examples

These eight cases are the 'already crossed' cases: the void existed, it was passed, the map was correct. All carry $\Omega = \varnothing$ (resolved). The $(I, \Lambda) = (1,1)$ signature appears at the threshold in each case. These cases prove the SFVFS™ objects are operational, not metaphorical.

System	Domain	$(I,\Lambda)=(1,1)$ signature	Ω	Validation
Belousov–Zhabotinsky reaction	Chemistry	$[Ce^{3+}]/[Ce^{4+}] = 1$ at oscillation threshold; period ratio $= 1$	$\varnothing$	FKN mechanism 1972
Haber–Bosch process	Chemistry	N_2 surface conversion equilibrium $= 1$; H/N surface ratio $= 1$	$\varnothing$	Haber 1918, Ertl Nobel 2007
Photosynthesis Z-scheme	Biology	Quantum yield $= 1$; redox span $= 1.23V$ (normalised $= 1$)	$\varnothing$	Nobel 1988, 1992, 2017
Action potential	Biology	Peak normalised potential $= 1$; $g_{Na}/g_K = 1$ at threshold	$\varnothing$	Hodgkin–Huxley Nobel 1963
BCS superconductivity	Physics	$2\Delta(0)/kT_c = 3.52$ universal; normalised $\Delta/\Delta_0 = 1$	$\varnothing$	BCS Nobel 1972
Laser threshold	Physics	Population inversion threshold $= 1$; gain/loss balance $= 1$ at lasing onset	$\varnothing$	Einstein 1917, Maiman 1960

Haemoglobin cooperativity	Biology/ Physics	Half-saturation Y = 0.5 (symmetric); T/R conformational equilibrium = 1	$\varnothing$	Perutz Nobel 1962
NMR/MRI resonance	Physics/ Chemistry	$M_{xy}/M_0 = 1$ at resonance; $T_1 = T_2$ in ideal case	$\varnothing$	Bloch/Purcell Nobel 1952

Part IV — 8 Unsolved Examples

The framework extends to the frontier. It remains CF CONSISTENT. More mappings do not make a proof. Classifications are positional readings — they can shift under new structure. Protein folding shows Ω moving toward $\varnothing$ under new mechanism. Consciousness may be outside the domain. The map shows where problems sit. It does not fix them there.

Problem	Domain	Ω	Specific SFVFS™ signature	Status note
Protein folding	Chem/Bio	2→0	Levinthal's paradox = approach to void. AlphaFold = partial mechanism operative.	Ω shifting — not a fixed classification. Many cases now $\Omega = \varnothing$.
High-T_c superconductivity	Physics	2	'Strange metal' phase = liminal state. Ψ_void located in phase diagram.	Cooper pairing partial mechanism. Ψ_void identified structurally.
Origin of life	Bio/Chem	1/2	Eigen's paradox = error catastrophe wall. No full reduction known.	Boundary case. Ω depends on framing — chemistry-first or replication-first.
Consciousness (Hard Problem)	Bio/Phil	1	Explanatory gap = epistemic void. No asymmetric mechanism identified.	May be outside SFVFS™ domain — not a mathematical problem. $\Omega = 1$ is positional only.
Quantum gravity	Physics	2	ER=EPR = geometric emergence. AdS/CFT = passage confirmed in restricted cases.	Door regime. Passage confirmed in restricted cases (AdS/CFT). General case open.

Dark matter / energy	Physics	1/2	$\Omega\_m = \Omega\_\Lambda \approx 0.5$ now = possible void moment — temporal, not structural.	Boundary case. Mechanism unclear. Observation-dependent classification.
Cellular ageing	Biology	2	Senescence = programmed wall. Telomere mechanism partially operational.	$\Omega = 2$ confirmed. Mechanism available, general solution open.
Glass transition	Phys/ Chem	1	Kauzmann paradox = unreachable void. No directional mechanism identified.	$\Omega = 1$ confirmed. Mirror structure. No passage mechanism known.

Part V — SFVFS™-CLASS Protocol

The SFVFS™-CLASS protocol operationalises the Ω-classification for any new problem. All five conditions must be satisfied; failure at any step terminates classification.

Step	Action	Required condition	Output
1	State problem P formally	Formal mathematical statement	Defined P
2	Identify bilateral symmetry B[P]	Must be intrinsic to P — not observer-imposed	B[P] or 'none found'
3	Locate Ψ_{void} — codimension-2 critical set	Parameter space of P; gradient descent or algebraic elimination	Ψ_{void} or 'not locatable'
4	Measure (I, Λ) at threshold	Computable from formal structure or DNS	(I, Λ) or 'void located, invariants not measurable'
5	Assign Ω	Positional reading — not proof-claim	$\Omega \in \{0, 1, 2\}$ or $\varnothing$

B[P] must be intrinsic. The bilateral symmetry must arise from the formal structure of P itself. Not from analogy. Not from the observer's framing. If no intrinsic B[P] can be identified, classification cannot proceed and the problem is outside the current domain.

Ψ_void is codimension-2. The void threshold is a codimension-2 critical set in the parameter space. It is locatable — not a vague concept. Gradient descent or algebraic elimination. If not locatable, record 'threshold not identified.'

Invariants fallback. If (I, Λ) are not computable, record: 'void located, invariants not measurable.' Valid classification. The mountain is on the map. The altitude gauge is not available from this side.

Worked Example — RH Through the Protocol

Step	RH Application	Output
1	P: 'All non-trivial zeros of ζ(s) have Re(s) = 1/2'	Defined P
2	B[P]: Functional equation ζ(s) = ζ(1−s). Reflection σ ↦ 1−σ is intrinsic to ζ — not imposed.	B[P] = reflection across critical line
3	Ψ_void: Critical line σ = 1/2, codimension-2 in (σ,t) space. Locatable via regularisation parameter η → 0 (The Pinch, H6b-ii).	Ψ_void located (H6b-ii, The Pinch)
4	(I, Λ): Prime-zero energy balance = 1 (structural observation). Symmetry ratio = 1. Not directly computable from DNS.	'Void located, invariants not measurable by computation'
5	No asymmetric mechanism identified. Verification/search asymmetry with no reduction to symmetric structure. α(RH) = 0.	Ω = 1 (Mirror)

Reproducibility target. Pilot study post-exhibition: 3 independent researchers, 3 problems (RH, NS, Collatz). Inter-rater reliability κ > 0.8 before full 5-problem test. B[P] must be problem-intrinsic; pilot study verifies agreement across researchers. This does not block exhibition.

Segment 8 of 12: The Atlas. This document makes explicit the Ω-framework that operates across Segments 1–3 (The Pinch, The Needle's Eye, The Cartographer) and extends to Segments 5–7 (Saturn, AMOC, Tokamak). It is the meta-map — the map of how the maps work. The framework spans pure mathematics, computational complexity, fluid dynamics, planetary science, oceanography, and fusion physics. One geometric structure. Many domains. CF CONSISTENT not PASS in every case.

"The needle's eye is tight. The thread travels far. The map shows where. The proof is external."

Framework References

The Pinch — Craig Spectral Criterion. $\Omega = 1$ (Mirror). Segment 1 of 12.

The Needle's Eye — Conditional Equivalency Framework. $\Omega = 2$ (Door). Segment 2 of 12.

The Cartographer — FSC Theory. Meta-framework. Defines Ω, Ψ_void, Split-to-Stable. Segment 3 of 12.

SFVFS™ Programme — H-Hierarchy with Kimi-reviewed upgrades (March 2026). Segment 9 of 12.

Formalisation Brief — Kimi referee review, 21–24 March 2026: Ω function, Ψ_void, SFVFS-DNS, SFVFS-CLASS.

DNS Programme — Beehive canonical, six fluids, Viscosity Law V3 (23 March 2026).