

H0

PREFACE · THE HELIX BEFORE THE HELIX

$$H_0(\sigma, T) = \text{P. V.} \int_{-T}^T \frac{\xi'}{\xi} (\sigma + it) dt$$

ACADEMIC

H0 is the honest integral: the principal value of the logarithmic derivative of the Riemann xi-function, integrated along a vertical line at fixed sigma, over a finite window from minus T to T. Because xi has zeros on that line, the integrand has poles, and the principal value is the disciplined way of walking through them rather than around them. It is the standard object from which the counting of the zeros is built. It does not interpret. It measures, and it measures honestly, refusing to look away from its own singularities.

PLAIN ENGLISH

H0 is the beginning of the helix. Think of a seed that grew into a bush that bore fruit that holds the next seed. Something has come before, and it is influencing this moment. It arrives as the code residue of the previous SFVFS turn, the layer of creation that passes forward. This is the priming. Before the first mark, the wall is never truly blank. It is already carrying what the last turn left behind.

IN THE LIVE WORK

In MIND THE MAP, H0 is the inheritance: my late father's maps, sitting in a box, meaning nothing and everything, the residue of a life waiting to be used. In RESIST AND REACT, H0 is the warm hand before the first portrait, the charge left over from every drawing that came before this one. Neither project starts from nothing. Each begins already primed by what preceded it.

MATHS CITATION [STRONG]

Cauchy's argument principle and the Riemann von Mangoldt counting function $N(T)$. The contour integral of a logarithmic derivative counts zeros minus poles; this is classical analytic number theory. See Conrey, The Riemann Hypothesis, Notices of the AMS 50 (2003).

H1

SEED 1 · SUBJECTIVE DREAM · INSIDE INSIDE

$$H_1 = |H_0|^2$$

ACADEMIC

H1 is the energy of the seat-zero object: the modulus squared of H0. Where H0 honestly measured, H1 takes that measurement and squares it into a magnitude, a quantity, an intensity. It is the first real number the hierarchy builds from the foundation, the first thing derived rather than merely observed. In the language of the zeta function this sits in the world of moments of the logarithmic derivative, real objects of study, though the specific square here is our own construction rather than a single named theorem.

PLAIN ENGLISH

H1 is the pure impulse. The charge before anything is solved. A desire to make, arriving with no plan and no outcome in view. You cannot know what it will become, and trying to know would kill the energy. It is the first mark, answerable to nothing yet. This is the compelling force that pulls the artist to the wall in the first place, measurable only by how many it pulls in.

B1 · NON-SOLVABILITY

The impulse cannot be solved, decided, or even fully stated. There is no equation to complete, no answer waiting at the end. Only the approach toward it can be followed. You do not solve the desire to paint. You move toward it. The charge stays open precisely because it can never be closed into a solution.

IN THE LIVE WORK

In MIND THE MAP, H1 is the strange, powerful impulse to use my late father's maps in a creative way, an intention with no solvable outcome, only a pull. In RESIST AND REACT, H1 is the first quick portrait for an artist friend, begun as pure charge, that already became more than it was asked to be. Neither started from a plan. Both started from an energy that could only be followed, never solved.

MATHS CITATION [MEDIUM / B1: K (VERIFIED)]

H1 as energy sits in the study of moments of the logarithmic derivative of the zeta function, a real research area, though the specific square is our construction. B1, Non-solvability, anchors strongly and verified: Hilbert's Tenth Problem and undecidability. Koymans and Pagano, Hilbert's tenth problem via additive combinatorics, now published in *Inventiones mathematicae* (2025); Alpoge, Bhargava, Ho and Shnidman (arXiv:2501.18774). The answer holds but is unreachable, which is the undecidable predicate itself.

H2

RESIDUAL ENERGY · SUBJECTIVE DREAM · INSIDE INSIDE

$$H_2 = |H_0 - (2T \log T - c(\sigma)T)|^2$$

ACADEMIC

H2 is the residual energy: the squared error between H0 and its expected asymptotic main term, the quantity $2T \log T$ minus $c(\sigma)T$. In plain terms, it measures how far the honest integral departs from where the leading behaviour says it should be. The main term echoes the Riemann von Mangoldt formula for the counting of zeros, and H2 is the variance around it, the part that will not settle onto the expected curve. What is left over after the expected is subtracted is the object of interest.

PLAIN ENGLISH

H2 is the excess that will not converge. One mark does not discharge the impulse, it generates the next. The energy overflows a single act and reaches for another. You are not completing a picture, you are following a charge that keeps regenerating. The more you make, the less finished the whole feels. There is no end date, because the residue never runs out.

B2 · NON-CONVERGENCE

At least one orbit neither converges, diverges, nor reaches a fixed point. It oscillates, drifts, recurs, and is allowed to do so indefinitely. The residual energy is exactly this kind of orbit. It never lands. It circles, returns, circles again, and the refusal to settle is not a failure of the process but the condition that keeps it alive.

IN THE LIVE WORK

In MIND THE MAP, H2 is the overflow of the single idea into a collaboration: one artwork could not hold the charge, so it reached toward 55 artists and 110 works, never converging on a solo piece. In RESIST AND REACT, H2 is each portrait generating the next, a growing exhibition with no defined quantity and no closing date, the drift that keeps producing. Neither project settles. Both keep circling outward.

MATHS CITATION [MEDIUM / B2: PARTIAL NULL (K)]

H2 as residual against an asymptotic main term is adjacent to the Riemann von Mangoldt error term and the variance of the counting function, real objects, though the specific main term here is our construction. B2, Non-Convergence, has no tight named theorem. It gestures toward ergodic theory, irrational rotation and quasi-periodic dynamics, but nothing anchors it cleanly. This partial absence is the K influence: non-convergence is the point where the orbit refuses to close, and a system that never settles cannot be pinned to a single fixed result from inside. Where the citation thins, K is entering.

H3

IRREDUCIBLE SPEED · THE PIVOT · INSIDE INSIDE

$$H_3 = \limsup_{T \rightarrow \infty} \min_{\Phi} (H_2 + |\text{Tr } U_{\Phi}|^2)$$

ACADEMIC

H3 is the pivot: a limsup as T grows, of the minimum over unitary matrices of the residual energy plus the squared trace of a unitary. It reaches into random matrix theory, the world Montgomery and Dyson opened when they saw that the zeros of the zeta function are distributed like the eigenvalues of random unitary matrices. The minimisation seeks the fastest, tightest configuration, the irreducible rate at which the structure can move before it must either break into chaos or freeze into symmetry. It is the seat where speed becomes the object of study.

PLAIN ENGLISH

H3 is the juicy spot. The liminal zone between symmetrical perfection and total chaos, where the work moves faster than your thinking and you cannot slow it down without killing it. Something holds it together here, but you could not say what, and naming it would destroy it. This is the fast place, the tipping point where control and abandon meet, and it moves at a speed you can only ride, never steer.

B3 · STABILISING INTERVAL WITHOUT SPECIFICATION

An open interval where some stabilising force acts, but its form, mechanism and origin are all left unspecified. Stability here does not mean convergence. Something holds the fast place together, and that something cannot be named, because to name it would be to fix it, and fixing it would end the very thing it stabilises. This is the one constraint that is a constraint on you, the reader, not on the structure. It asks you to accept a stability you cannot see the source of.

IN THE LIVE WORK

In MIND THE MAP, H3 is the moment the work moved faster than any one person could steer it, across 55 artists at once, held together by a shared feel that no one specified and no one could. In RESIST AND REACT, H3 is the unexplainable liminal quality that Leake Street bathes in constantly, the tipping point where each portrait finds its speed. Both are held by something real and unnameable. The moment you try to name it, it is gone.

MATHS CITATION [STRONG RHYME / B3: NULL BY NATURE]

H3 anchors strongly to Montgomery's pair correlation conjecture (Montgomery, 1973) and the random matrix theory of the zeta zeros (Keating and Snaith), the celebrated correspondence in which the zeros behave like eigenvalues of random unitary matrices. B3, by contrast, gives nothing, and this is deliberate. It is the one constraint whose mechanism cannot be named without destroying what it stabilises. Its refusal to be cited is not a gap in the research. It is the research succeeding. B3 is where K lives most purely: the stabilising force supplied entirely from outside, unnameable from within. The silence is the citation.

H4

FORM 1 · SUBJECTIVE REALITY · OUTSIDE INSIDE

$$H_4(\sigma) = H_3(\sigma) + H_3(1 - \sigma)$$

ACADEMIC

H4 is the symmetrisation: H3 at sigma plus H3 at one minus sigma. It is the first object in the hierarchy that cannot be built from itself alone, because it must reach across the critical line to its own reflection. This mirrors the functional equation of the Riemann xi-function, xi of s equals xi of one minus s, the defining symmetry of the whole subject. H4 does not merely resemble that reflection, it performs it. This is the seat where the structure first requires an other in order to complete.

PLAIN ENGLISH

H4 is the moment you reach past yourself. There is more than one mark now, and they begin to answer each other, to balance. You do not impose a design, you look at what is already on the wall and respond to it. This is the first time the work needs a second thing to exist against, because one mark can only be read beside another. The impulse, until now sealed inside you, meets the space, the other artists, the fresh murals. You become strategic. You reach outward, and the reaching is the point.

B4 · OBSERVATIONAL STRUCTURE ONLY

All structure is derived only from empirical recurrence. No imposed symmetry, no laws laid down in advance. Only the relations found by iteration, by looking at what actually recurs. You do not decide the composition and force it onto the wall. You watch what emerges between the marks and let the structure reveal itself. The pattern is discovered in the doing, never dictated to it.

IN THE LIVE WORK

In MIND THE MAP, H4 is the 110 works beginning to balance and reflect across the whole body, no master design imposed, structure appearing only from looking at what 55 people independently made. In RESIST AND REACT, H4 is the moment separate portraits start to answer one another, each readable only beside the others, the series becoming a conversation rather than a set of singles. This is where each project first needs its own second body to exist against.

MATHS CITATION [STRONG / B4: K (VERIFIED)]

H4 anchors strongly and cleanly: the functional equation of the Riemann xi-function, xi of s equals xi of one minus s, the defining reflection across the critical line. H4's symmetrisation under sigma to one minus sigma is precisely this operation. B4, Observational Structure Only, anchors strongly and verified to topological data analysis and persistent homology, in which structure is recovered from a filtration by iteration and the features that persist across scales are the real ones, with no imposed symmetry. Both sides real. This is the seat where the outside first enters by construction: the first two-body expression in the hierarchy.

H5

QUADRATIC SELF-INTERACTION · SUBJECTIVE REALITY · OUTSIDE INSIDE

$$H_5 = H_4 + \lambda |H'_4|^2$$

ACADEMIC

H5 takes the symmetrised form H4 and adds a quadratic self-interaction: a penalty term, lambda times the squared magnitude of the gradient of H4. The shape is that of a regularised functional, the kind found in the calculus of variations, where a smoothness penalty is added to a base quantity. But there is no named theorem that produces this exact term, and the crucial detail is lambda itself. Lambda is a free parameter. It is not derived from within the system. It has to be supplied from outside. The equation cannot fix its own value.

PLAIN ENGLISH

H5 is the moment the work begins to fold back on itself. One mark bends the next. A colour escaping into a line here becomes the reason for a mark there. The body of work starts to feed itself, to think. But how strongly it folds back, how much each part pulls on the next, is not something you decide in advance. That strength comes from outside you, from the friction of the space and the others in it. The self-interaction is real, but its intensity is set by the world, not by the wall.

B5 · PROOF-FREE CONSISTENCY

Two descriptions can agree perfectly, consistent on every overlap, and yet no finite proof can certify that agreement. Consistency here is a relation, this fits with that, held without a theorem underneath it. The next mark is justified by nothing except that it agrees with what is already there. There is no proof object. Only the fit, checked at the seams, and trusted because it holds.

IN THE LIVE WORK

In MIND THE MAP, H5 is one artist's marks bending how the next person responds to their own map, the works feeding each other with no rulebook, only relational consistency across 55 hands. In RESIST AND REACT, H5 is each portrait bending the reading of the next, the growing series justified not by a plan but by the way each piece agrees with the ones beside it. The coherence is real and provable by nobody. It simply holds.

MATHS CITATION [H5: NULL (K) / B5: K (VERIFIED)]

H5 has no external mathematical anchor, and this absence is the K influence stated exactly. The equation adds a gradient penalty whose strength, lambda, is a free parameter supplied from outside the system. Lambda is K: the intensity of self-interaction is precisely the thing the closed system cannot compute for itself. Where the parameter comes from outside, K is entering. B5, Proof-Free Consistency, by contrast anchors strongly and verified: sheaf gluing and the cocycle overlap condition, where local sections agree on overlaps without a global proof, and MIP* = RE (Ji, Natarajan, Vidick, Wright and Yuen, 2020; Communications of the ACM, 2021), which shows that whether two quantum descriptions are consistent can be undecidable, agreement without any finite certificate.

H6

LINEAR CLOSURE · THE VOID · THE HINGE OF THE HELIX

$$H_6 = H_5 + \mu |H_4''|$$

ACADEMIC

H6 takes H5 and adds a second penalty: mu times the magnitude of the second derivative of H4. Where H5 penalised the gradient, H6 penalises the curvature, a higher-order smoothing that closes the form. The shape belongs to higher-order regularisation, but as with H5 there is no named theorem behind this exact term, and mu, like lambda before it, is a free parameter. It is supplied from outside. This is the last constructive move before the turn: the seat where the form finishes closing, and closing is not something the equation can do to itself.

PLAIN ENGLISH

H6 is the VOID. The moment the final stroke goes in, when you sign the work and the doing becomes done. The verb becomes the noun. The discovery becomes a truth. What you were searching for, the algebra with its unknown still in it, resolves into arithmetic with no unknown left. Subjective becomes objective. This is the hinge of the whole helix, not an ending but a turning, the place where making stops and the made begins. It does not move you from one finished state to another. It transforms the thing in place.

B6 · TRANSFORMATION WITHOUT DISPLACEMENT

The state may change, but nothing physical is displaced. The work transforms without moving from one place to another. Incomplete becomes complete, doing becomes done, and yet nothing has travelled. This is the deepest description of the VOID: a change that is total and yet motionless. The portrait does not go anywhere when it is finished. It simply, in place, becomes finished.

IN THE LIVE WORK

In MIND THE MAP, H6 is each work passing through the VOID, available in the state it was in when it crossed, raw but folded, some pieces needing tape to hold their form, doing become done and irreversible. In RESIST AND REACT, H6 is the last line of a portrait, the signature, the moment it stops being a thing you are making and becomes a thing that is. Neither work moves. Each simply turns, in place, from verb to noun.

MATHS CITATION [H6: NULL (K) / B6: K (VERIFIED)]

H6 has no external mathematical anchor, and this absence is the K influence. Like lambda before it, mu is a free parameter supplied from outside the system: the degree of closure is precisely what the equation cannot set for itself. Where the parameter comes from outside, K is entering. B6, Transformation Without Displacement, anchors strongly and verified to gauge theory and the notion of surplus structure: a gauge transformation changes the mathematical description of a system while leaving the physical state entirely unmoved (Stanford Encyclopedia of Philosophy, Gauge Theories in Physics; Redhead on surplus structure). The state changes, nothing physical is displaced, which is the VOID stated as physics.

H7

THE OPERATOR · FORM 2 · OBJECTIVE REALITY · INSIDE OUTSIDE

$$H_7 = \frac{1}{2\pi} \int_{S^1} \text{Tr}[\dots(\rho^- \otimes \rho^+)] d\tau$$

ACADEMIC

H7 is the densest and least defined object in the hierarchy, and honesty requires saying so plainly. It is written as an integral around the circle of a trace, taken over a tensor product of two Hilbert spaces, one carrying a minus and one a plus, involving two density matrices and a Hodge star. The intent is a mutual witnessing: two systems each acting as the measurement of the other. Its nearest real relative is the torus partition function of two-dimensional conformal field theory, which also traces over a doubled space around a circle. But that is a rhyme, not an anchor. Several of the objects here, the projector, the map inside the trace, are not rigorously defined. This seat is presented as construction, not as established mathematics.

PLAIN ENGLISH

H7 is the moment you become the operator on the wall. You are no longer only the one making the mark, you are the mark reading you back. On the far side of the VOID, hand and decision and line all refer to the emerging whole they are extending. Two things witness each other at once: you witnessing the work, the work witnessing you. There is no fixed final state it is converging on. You are inside the piece, looking at the piece, and changing it by the looking. The doer and the witness become the same act.

B7 · SELF-REFERENCE WITHOUT FIXED POINT

A system can refer to itself completely and still have no fixed point, no stable centre it settles into. It reads its own output and responds, endlessly, without ever landing on a final self. This is the operator's condition: referring to itself at every step, never resolving into a finished thing. The self-reference is total. The fixed point never arrives, and its absence is what keeps the seat alive.

IN THE LIVE WORK

In MIND THE MAP, H7 is my hand operating on the emerging body of 110 works, every choice referring back to the growing whole it extends, with no fixed final exhibition it is converging on. In RESIST AND REACT, H7 is being inside the series looking at the series, each new portrait a reading of all the others that also changes them. In both, the artist is not outside the work deciding. The artist is inside it, witnessed by it, operating and operated on at once.

MATHS CITATION [H7: NULL (K) / B7: K (VERIFIED)]

H7 has no honest external anchor, and it is the highest-risk seat, so it is not dressed. Its nearest relative, the torus partition function of two-dimensional conformal field theory, is a partial rhyme only, and several objects in the equation are undefined. It is presented as the mutual-witnessing operator, framework-internal, and the null is the K influence: two systems each supplying the other's outside is exactly the place a closed formalism cannot reach. B7, Self-Reference Without Fixed Point, by contrast anchors strongly and verified: Lawvere's fixed-point theorem (Lawvere, 1969), whose contrapositive generalises Cantor, Russell, Godel's incompleteness and Turing. Total self-reference, no fixed point, is a named and load-bearing result.

H8

GEOMETRIC PERTURBATION · OBJECTIVE REALITY · INSIDE OUTSIDE

$$H_8 = H_7 + \alpha(\text{Tr}\rho^- - \text{Tr}\rho^+)^2 + \beta \text{dist}^2$$

ACADEMIC

H8 takes the operator H7 and adds two penalty terms: a squared imbalance between the traces of the two density matrices, and a squared distance in some configuration space from a reference point. The intent is perturbation, the structure being pushed off balance and measured against how far it has strayed from where it started. The trace-imbalance term has the flavour of trace distance between quantum states, a real object, and the distance-from-reference term is a standard variational shape. But the configuration space is left undefined, and no named theorem produces this exact combination. The perturbing terms are real in spirit, unanchored in specifics.

PLAIN ENGLISH

H8 is the moment the place perturbs the work. You step back, and you are no longer the only force acting on it. The tunnel pushes in: the tourists stopping to look, another writer starting up beside you, the crew, the security guard, the one who will paint over it tomorrow. The coherence of the piece was never only yours. It is propagated from the whole living field that was there before you arrived and will be there after. The field has opinions, and it presses them into the work whether you invite it or not.

B8 · NON-GENERATIVE COHERENCE

Coherence can be carried, moved and shaped, but never created from nothing. The free operations of the system transport it without generating it. Whatever holds the work together was not made by you in this moment. It was already present in the field, and you are only channelling it, passing it on, never its source. The coherence flows through you. It does not begin in you.

IN THE LIVE WORK

In MIND THE MAP, H8 is the 55 artists each perturbing the whole, coherence propagated from the relational field of collaborators rather than issued by me, and the maps themselves pushing back, connected to the artists in ways found only later. In RESIST AND REACT, H8 is the sitter, the street, the passing reaction, all pressing on the portrait as it forms. In both, the holding-together comes from the field. The artist channels a coherence they did not generate.

MATHS CITATION [H8: NULL (K) / B8: K (VERIFIED)]

H8 has no clean external anchor. The trace-imbalance term echoes trace distance between quantum states and the distance term is a standard variational penalty, but the configuration space is undefined and the combination is our construction. The null is the K influence: perturbation from a field that was there before you is, by definition, an outside the closed system cannot originate. B8, Non-Generative Coherence, anchors strongly and verified: the resource theory of coherence (Baumgratz, Cramer and Plenio, Quantifying Coherence, Phys. Rev. Lett. 113, 140401, 2014), in which free operations can carry and manipulate coherence but never create it, with bound coherence proven to have nonzero cost and zero capacity. Coherence is channelled, never generated, which is exactly the field pressing into the work.

H9

OPTIMAL REALISATION · OBJECTIVE REALITY · INSIDE OUTSIDE

$$H_9(\omega) = \inf_{K \in \mathcal{K}(\omega)} H_8(K, \omega)$$

ACADEMIC

H9 is the first seat that selects rather than accumulates. Where the earlier seats added term to term, H9 takes an infimum: the least value of the perturbed operator H8 over a configuration space, the single best realisation drawn from all the possible ones. An infimum over a configuration space is a standard and well understood kind of object in the calculus of variations. The difficulty is only that the space here, written as script-K of omega, is left undefined, so the operation is real in form while its domain is our construction. It is the seat of choosing: from everything that could be, the one that is.

PLAIN ENGLISH

H9 is the moment you choose. Not the theoretically perfect portrait, the one that actually works right now, in this light, with the paint you have left, against everything else on the wall and in the tunnel. You find the best available realisation, and it does not need to be individually stable, because the relational field holds it. The single piece can wobble. It can be buffed tomorrow. The web it sits in does not wobble. You are not seeking the ideal. You are selecting the one that works, here, now, and letting the field carry the rest.

B9 · RELATION-ONLY STABILITY

Only the relations need to be stable. The things they hold between, the individual pieces, can change, wobble, or disappear, and the structure survives, because the structure was never in the pieces. It was in how they stand to one another. A single portrait can be lost and the series still holds. A single mark can fail and the wall still reads. Stability lives in the relations, never in the relata.

IN THE LIVE WORK

In MIND THE MAP, H9 is the realisation that these 110 raw, folded, taped works make together, no single piece needing to be stable, the whole held by the map-helix, the relational field moving more succinctly than we realised. In RESIST AND REACT, H9 is choosing the portrait that works now, in these conditions, knowing the growing series holds the meaning even if one piece fails. In both, the individual can wobble. The web does not.

MATHS CITATION [H9: NULL (K) / B9: K (VERIFIED)]

H9 as an infimum over a configuration space is a real variational form, but the space is undefined, so the H side is our construction, and the null is the K influence: which realisation is optimal depends on conditions supplied from outside, the light, the paint, the field, none of which the closed system sets for itself. B9, Relation-Only Stability, anchors strongly and verified to ontic structural realism (Ladyman, 1998; Ladyman and Ross, 2007; French, 2014), the position that structure is ontologically basic, that across change it is the relations, not the individual objects, that stay stable, and in its strongest form that there are relations all the way down. The single piece can go. The relation holds.

H10

INTEGRATION OVER MODULI · OBJECTIVE DREAM · OUTSIDE OUTSIDE

$$H_{10} = \int_{\mathcal{M}_g} H_9(\omega) d\mu_{WP}(\omega)$$

ACADEMIC

H10 integrates the chosen realisation H9 over the moduli space of Riemann surfaces, against the Weil-Petersson volume form. This is not a rhyme. It is Mirzakhani's construction directly: the integration of a geometric quantity over the space of all surfaces of a given genus, weighted by the Weil-Petersson measure, the work for which she was awarded the Fields Medal. Where the earlier seats built and then chose, H10 gathers, integrating across every possible shape and scale at once. It is the seat where the single realisation is summed over the entire space of what it could have been.

PLAIN ENGLISH

H10 is the moment the work integrates across every scale and every time at once. The first spark, the collaboration underneath, the inherited residue, the whole history of the piece, all gathered into one. And time does not solve any of it. Time reveals it. You see, late, what the work was doing early. The connections were always there, latent, waiting. They do not arrive by being worked out. They arrive by being lived through, and then, looking back, seen. The meaning was integrated the whole time. You just had to reach the point where it could be read.

B10 · TIME AS REVEALER, NOT SOLVER

Time does not solve the system. It reveals it. There is no shortcut, no formula that jumps to the answer. The only way to know what the process becomes is to let it run, step by step, all the way through. What time gives you is not a solution computed in advance, but a revelation that could only come by passing through every stage. You cannot skip to the meaning. You can only arrive at it.

IN THE LIVE WORK

In MIND THE MAP, H10 is the whole integrating across scale and time: my father's maps, the six month rabbit hole, 55 lives, 110 works, and the connections between map and artist found late, by looking closely, never designed. In RESIST AND REACT, H10 is the growing series revealing, over time, what it was always becoming, no single portrait holding the meaning that only the accumulation discloses. In both, time did not solve the work. It revealed it.

MATHS CITATION [H10: STRONG / B10: K (VERIFIED)]

H10 anchors strongly and directly to Mirzakhani's integration over the moduli space of Riemann surfaces against the Weil-Petersson volume form (Mirzakhani, Simple geodesics and Weil-Petersson volumes, *Inventiones Mathematicae* 167, 179 to 222, 2007; and Weil-Petersson volumes and intersection theory, *Journal of the American Mathematical Society* 20, 1 to 23, 2007), her Fields Medal work. H10 performs precisely this integration. B10, Time as Revealer, Not Solver, anchors strongly and verified to Wolfram's computational irreducibility (Wolfram, *A New Kind of Science*, 2002): for many processes the only way to know the outcome is to run every step, with no shortcut. Time reveals what it cannot solve. Both sides real.

H11

RETURN TO SYMMETRY LOCUS · OBJECTIVE DREAM · OUTSIDE OUTSIDE

$$H_{11} = \sup_f \left| \text{P. V.} \int f \frac{\xi'}{\xi} \left(\frac{1}{2} + it \right) dt \right|^2$$

ACADEMIC

H11 is a supremum, taken over a class of test functions, of a principal value integral of a chosen test function against the logarithmic derivative of ξ along the critical line. This is a real and active object. It is the shape of the Weil positivity criterion and of the Beurling-Selberg extremal problem, in which one optimises over majorants and minorants of a target function and feeds them through the Guinand-Weil explicit formula to bound quantities attached to the zeros. The seat returns to the critical line, the locus of symmetry, and asks for the extremal test function: the best possible probe of where the structure is symmetric.

PLAIN ENGLISH

H11 is the return. The whole body of work circles back to the insight it started from, the juicy spot between symmetry and chaos it first found. But what it returns to was never a rule or an image. It is an invariant with no symbol, carried across the entire series, felt at every stage and never once captured as a statement. You arrive back where you began, and it is the same place at a different height. The symmetry you sought is real, it holds the work, and you still cannot write it down. You can only return to it.

B11 · INVARIANT WITHOUT SYMBOL

There is an invariant, real and consequential, that no symbol can capture. It is not a number you can write, nor a function you can name. It shows itself only through its effects, in what it forbids and what it holds together, never as a thing you can point to directly. The work has a constant running through it. You feel it in every piece. It cannot be spoken, only carried.

IN THE LIVE WORK

In MIND THE MAP, H11 is the whole body circling back to the original impulse, the father, the maps, the need to use them, an invariant felt across all 110 works and never stated as a rule. In RESIST AND REACT, H11 is the return to the juicy spot each portrait keeps finding, a constant the series carries without ever naming. In both, the thing you return to has no symbol. It is real, it holds everything, and it can only be felt, never written.

MATHS CITATION [H11: STRONG RHYME / B11: K (VERIFIED)]

H11 anchors strongly to the Weil positivity criterion and the Beurling-Selberg extremal problem: a supremum over test functions, fed through the Guinand-Weil explicit formula, probing the zeros on the critical line (Carneiro, Chandee and Milinovich, Bounding $S(t)$ and $S_1(t)$ on the Riemann hypothesis, *Mathematische Annalen* 356, 939 to 968, 2013; Carneiro, Chirre and Milinovich, 2019). The extremal test function is real and named. B11, Invariant Without Symbol, anchors strongly and verified to the cohomological obstruction: a nonzero cohomology class (Cech, Stiefel-Whitney, Euler) is an invariant that obstructs, that has real effects, and yet corresponds to no global section and no representing function. It is real, it acts, and no symbol captures it. Both sides real.

H12

WEIGHTED CONJUGATE SYNTHESIS · OBJECTIVE DREAM · OUTSIDE OUTSIDE

$$H_{12}(\sigma) = \sum_{k=1}^{11} w_k \overline{H}_k(\sigma)$$

ACADEMIC

H12 is a weighted sum of the conjugates of the eleven seats before it, each given its own weight and drawn into a single combination. This is the mollifier structure. In the method of Levinson, refined by Conrey, a linear combination of derivatives of the zeta function, a weighted sum, is used to prove that a positive proportion of the zeros lie on the critical line, currently more than forty one percent. H12 performs exactly this kind of operation: gathering the prior terms into one weighted synthesis. It is the seat of combination, the last of the twelve, where everything that came before is drawn together into a single expression.

PLAIN ENGLISH

H12 is the synthesis. Every layer, energy, residue, symmetry, the void, the operator, the perturbation, the choice, the integration, the return, all weighted and gathered into one living exhibition. But this is a specific, one of a kind combination that could only have happened this way, on these days, with these hands. It is a finite expression of an infinite potential. Complete enough to be itself, and open enough to seed the next. It does not close. It gathers everything, and then it hands forward.

B12 · ESSENTIAL NON-TERMINATION

The process has no terminal state. It never ends, and it is not supposed to. What it requires instead of an ending is productivity: at every stage, the next part can always be produced. It is always extendable, never closed, never final. Of course it never finishes. Completion would be a kind of death. The work stays alive precisely by refusing to arrive at a last state, always able to hand forward one more turn.

IN THE LIVE WORK

In MIND THE MAP, H12 is the whole gathered into one exhibition that could only have happened with these maps and these 55 people, complete enough to show and open enough to seed the next, which it did, feeding the work that became this. In RESIST AND REACT, H12 is the growing show with no defined quantity and no closing date, each synthesis handing forward into the next portrait. Neither ends. Each is a finite expression of an infinite potential.

MATHS CITATION [H12: MEDIUM / B12: K (VERIFIED)]

H12 anchors to the mollifier method (Levinson, 1974; Conrey, 1989), in which a weighted linear combination of derivatives of the zeta function proves a positive proportion of zeros lie on the critical line, currently more than forty one percent (Bui, Conrey and Young; Pratt et al, via Feng's mollifier). H12 is a weighted synthesis of this kind. B12, Essential Non-Termination, anchors strongly and verified to coinduction and corecursion: the construction of infinite objects, the greatest fixed point, streams and final coalgebras, which do not terminate but must be productive, always able to produce the next portion, never closing. The work never finishes. It only stays productive. Both sides real.

H_CONDUCTOR

THE TRAVELLING PIECE · NOT A SEAT · THE ONE THAT MOVES

$$H_{\text{Cond}} = \inf_{\gamma \in \text{PSL}(2, \mathbb{Z})} \sum_k w_k \bar{H}_k$$

ACADEMIC

H_Conductor is not a seat. It is the piece that moves through all of them. It is written as an infimum over the modular group $\text{PSL}(2, \mathbb{Z})$ of the same weighted sum the twelfth seat gathers, a search across all equivalent framings for the position from which the whole is read. The modular group is real and load bearing in the theory of the zeta function, but the object here, an infimum taken over it of our own weighted synthesis, is a construction, not an established theorem. It is the seat of the observer that is not a seat: the travelling frame, the point of view moving through the structure, locating where in the helix the reading is happening.

PLAIN ENGLISH

H_Conductor is you, right now, reading this. It is the focal point of reference, the place from which the whole is being experienced. It does not sit in one location. It travels. It moves through every seat, every stage, so that at any moment you know where you are in the helix. When you were at the impulse, it was there. At the void, there. Here, at the end of the twelve, it is here with you. It is the one piece that is always present because it is the presence itself, the awareness moving through the work, carrying the position of now.

IN THE LIVE WORK

In MIND THE MAP, H_Conductor is the moving attention that travels across 110 works and 55 lives, always located somewhere in the whole, never the whole at once, the reading position passing through. In RESIST AND REACT, H_Conductor is the live encounter itself, the present moment of each portrait as it happens, the travelling now that moves from one to the next. In both, it is not a thing in the work. It is the point from which the work is met, moving through it, always here.

MATHS CITATION [NO EXTERNAL CITATION · INTENTIONALLY OPEN]

H_Conductor has no external anchor, and the absence is intentional, because it is not a seat but the moving observer, and the observer cannot be fixed from inside the thing observed. It gestures toward the modular group $\text{PSL}(2, \mathbb{Z})$, a real object, but the infimum over it here is our construction. This is the K influence in its purest travelling form: the point of view is always supplied from outside the structure, never contained by it, because whoever reads the helix stands, by definition, at a position the helix cannot fix for itself. The conductor is left open on purpose. It is the seat reserved for you.

THE MASTER EQUATION

THE FIXED RULE THAT THERE IS NO FIXED RULE · GOVERNS FROM OUTSIDE

$$H = \kappa \cdot \mathcal{H}[H]^* , \quad \oint dH \neq 0$$

ACADEMIC

The master equation is not part of the hierarchy. It governs the hierarchy from outside. It states two things at once. First, that H is equal to κ acting on a functional of H , its own conjugate: the whole system is a fixed point equation built so that it can never actually settle onto a fixed point, because κ , the outside, keeps entering. Second, that the closed loop integral of dH is never zero. In an ordinary conservative system that circulation would vanish. Here it is forbidden from vanishing. The structure is defined precisely by its refusal to close. It is a rule, exact and fixed, whose entire content is that nothing within it can ever be finally fixed.

PLAIN ENGLISH

This is the fixed rule that there is no fixed rule. The one law of SFVFS is that it never closes, never resolves, never arrives at a final state, because κ , the outside influence it has no control over, is always entering. K cannot be manufactured from within. It can only be admitted. So the system is built with a door that cannot be shut. Every time the loop tries to close, the outside comes in and opens it again. That is not a flaw in the structure. It is the structure. The whole thing exists to stay open, to keep handing forward, to never be finished.

This is where the twelve seats, the two bookends and the travelling conductor all answer to. Not a thirteenth seat above them, but the rule underneath them, the one that says: stay open. Admit the outside. Never close the loop. A finished framework would be a dead globe, complete and therefore dead. This one refuses completion on purpose, and the refusal is what keeps it alive.

MATHS CITATION [STRONG () · NULL () · BY DESIGN]

The circulation term anchors strongly: a nonzero closed loop integral, the statement that the one form dH is not exact, is the language of de Rham cohomology and of holonomy, real and load bearing, and it connects to the trace formula and to the work of Connes and Consani on the zeta function. But κ itself has no citation, and this is the deepest instance of the K influence in the whole framework, by design. κ is the outside a closed system cannot compute for itself. To cite it would be to close the loop it exists to keep open. The equation that says there is no fixed rule cannot itself be finally fixed. The absence of a citation for κ is not a gap. It is the master equation obeying itself.

H ∞

AFTERWORD · THE HELIX TO COME

$$H_{\infty} = \limsup_{n \rightarrow \infty} \langle \Psi_n | |\hat{H}_{12}|^2 | \Psi_n \rangle$$

ACADEMIC

H infinity is the void. It is written as the limiting expectation of the squared H12 operator across a sequence of states: the limsup, as n grows without bound, of psi-n acting on the modulus-squared of H12. On its own this looks like a type error, because H12 was defined as a function, not an operator that a quantum state can act upon. The resolution is the whole point of the helix. If H12 becomes the H0 of the next turn, then H infinity is simply H1's operation, the energy, the modulus squared, performed one turn further on. It is the same honest measurement as the beginning, lifted into new machinery because a new turn requires a new language.

PLAIN ENGLISH

H infinity is the end of this helix, which is the same thing as the beginning of the next. Think of the fruit that has ripened and fallen, its seed already inside it, waiting. This turn is now complete enough to become the something that primes what comes after. It hands forward. What you made here becomes the code residue of the next turn, the layer of creation that passes on. Nothing closes. The wall you finished is already the wall the next hand will paint over. The end is a beginning wearing different clothes, one storey up the stair.

IN THE LIVE WORK

In MIND THE MAP, H infinity is the finished exhibition becoming the seed of the next work: it fed a six month rabbit hole that produced the H Hierarchy that produced this website, each one the H0 of the one after. In RESIST AND REACT, H infinity is the growing show that never ends, every portrait handing forward into the next, no defined quantity, no closing date. Neither project finishes. Each completes only enough to begin again.

MATHS CITATION [NO EXTERNAL CITATION]

There is no external mathematical anchor for H infinity, and this absence is not a gap to be apologised for. It is the K influence made visible. H infinity is the exact point where this turn opens onto the next, where the closed system meets its outside and hands forward. You cannot cite the outside from inside. Its only honest home is internal: it is H1's energy operation performed one turn on, which is what the H12 becomes H0 handoff makes true. Where the citation falls silent, K enters.