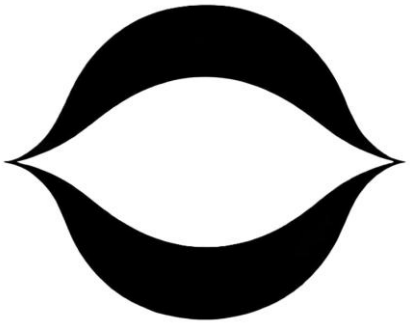


Seeing Alpha

Artist's Proof 54

Forces and Constants

α seen from the neck – the cut fraction, read once, the same at every window; every road to its value that closes, and the two that do not

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Artist's Note

Alpha has been keeping me awake at night, for months. It is a dimensionless number, and it is incredibly hard to derive. Richard Feynman called it “one of the greatest damn mysteries of physics”, and I agree.

Today, after spending far too much time on it, I can see alpha and describe it. Deriving it – well, that is another story.

Here is my perspective on alpha. I have thought more about it than about anything else in physics.

Richard P. Feynman, QED: The Strange Theory of Light and Matter, Princeton University Press, 1985.

0 – Dependency and Scope

0.1 – What this paper does

This paper says what α is. It reads α from the neck of the hourglass: the cut fraction, read once, the same at every window, inherited by every face of the grain. It says why the two readings of α – the break's share and the flow's rate – are one number. It records every road to α's value that has been walked inside the work – twelve closed, two open – with the reason for each. It refuses the value in advance and files the protocol under which a value would be sought. It changes no number. The work stands at one measured input, as AP24 §5.5 left it; this paper supplies the reasons.

0.2 – Dependencies

AP01 (The Actualization State), Paper B, Postulate G with D15–D16: the selection rate bounded by gravitational distinguishability, $\lambda \leq \Delta E_G/\hbar$. Load-bearing for §6.

AP06 (The Leakage Constant) v2, §7 and §9: $\varepsilon \equiv \eta$ by Identification 6.1, interpretive; $\varepsilon > 0$ derived from finite c; the value measured, domain-dependent, 1/137 assigned to the electromagnetic boundary by The Lock. Load-bearing for §2 and §10.

AP08 (The Identity) §5.1: κ is defined as $Gm_e^2/2$, and $G = 2\kappa/m_e^2$ is tautological – the coefficient has been relabelled, not independently derived; KS-I.3 and KS-I.4. Load-bearing for §10 Road Four.

AP10 (The Dimension), §5.1: the six residual faces read as three conjugate pairs by axis – G with c, the substrate stiffness with α_em, m_e with t – the residual's cross-check on 3+1, fenced by KS-D.1. Load-bearing for §10 Road Nine.

AP15 (The Connection) v2, §5 and the honesty statement: symmetry, dimension and conservation fix the Maxwell action at leading derivative order up to a coupling constant, whose dimensionless strength is α_em; KS-4 LIVE — HARD, with the value named there as the work of AP24 and AP28. Load-bearing for §10's closing and §11.

AP24 (The Residual): §2 the six faces; §3.1 the relations as dictionary entries; §5.4 determined, not derivable from within; §5.5 honest status; KS-35, KS-36; D1. Load-bearing throughout, with the dated notes of §13.

AP28 and AP44: the twenty-one windows compounding as α^{21}, the neck as the ring, $G = \alpha^{21}(1+1/\pi)/(1+\alpha)\cdot\hbar c/m_e^2$. Load-bearing for §6.

AP45 (The Blink), §6: the closing twelve and the arena's nine; the balance partition pairing m_e with G, α with c, the substrate with τ; the overlay coincident on all eighteen; and the ruling that the channel counts are geometry, fenced from arithmetic, generating no fraction. Load-bearing for §10 Roads Two and Nine.

AP46 (The Stretch) v1.5: §5 the tick as the reduced Compton time, ruled; §6 every door at α, the duty 18/21, the cycle $(21/18)\cdot\alpha^{-18}$ ticks; §2 the pinned splinter; §8 the shed per grain. Load-bearing for §4, §5, §7 and §10.

AP49 (The Hold): the chain of holders. Load-bearing for §10 Road Six.

AP50 (The Neck): §2 the neck as the grain's own aperture; §3 why exactly one reading is dimensionless; §4 eighteen held and three written; §5 a window as a completed exchange worth α; §8 one grain uncoupled. Load-bearing throughout.

AP51 (The Glass): the operators many, the awareness one; the pupil as the +1×ε; P-GLASS.1. AP52 (Reading Relativity): the now as the moment of writing and reading; a site's clock its own count. AP53 (Gravity Is the Neck): the neck as gravity; the source as what has landed. Load-bearing for §3, §5, §6 and §8.

The Keys, Book 1 – The Hourglass: the picture. The Basic Story v0.2 §4: the six describings owed before this paper starts – the rope, the 137, the blink, the return, the leak, entropy – all given by 12 September 2026, entropy with one sentence owed (§9).

No audit marks remain in this paper. Every locus above was read at the desk from the file of record; AP24 The Residual v2 was read at the desk on 12 September 2026 and every locus cited here and in §13 was checked against it.

0.3 – Axiom mapping

S. Perfect symmetry, the 1:1, zero entropy – the full potential of entropy (§9). The push that keeps the break as small as possible.

B. The break, the grain, ε; the one grain uncoupled at every now, the slack in the rope (§4, §5).

R. The record: the eighteen taut ropes on a held grain; writing and reading one action at the now (§5); the record readable only after the now (§2).

C. Propagation under the constraint of c; the material face's two stiffnesses whose ratio is c^2 (§2); no second reading of that face (§10).

And α against each of the four, as described. α as potential is the balanced, stable coupling – symmetry. α as the moment of the symmetry broken, now, relative to the held record history – the break. α as the record being reconfigured and held now, the coupling strength a relation of mass, resistance and gravity to one another and to the record history – the record. α constrained by c, in that the information that enables the writing and reading now propagates under c, and under gravity and resistance with it – the constraint. And α as the interaction between all of these happenings: the process of the happening, recorded. That last sentence is why α sits in the bracket of the axiom line and not on one of its four conditions. It is what the four do together, now.

0.4 – Epistemic status per section

§1 the axiom first – STATEMENT. §2 what α is – DEFINITION, on stated rules. §3 two views, one window – STRUCTURAL, switched (KS-ALPHA.1). §4 the rope and the rung – RULED. §5 the horse – DESCRIBING. §6 one number, two readings – IDENTIFICATION, inherited from AP06 and AP24, with the hourglass reading of it supplied here; the gravitational object an IDENTITY, caged. §7 what α is not – RULED. §8 the neck's reading – RULED as scope on

AP24 §5.4. §9 entropy – DESCRIBING, complete. §10 what does not derive it – REGISTER, each route with its locus and its reason. Road Fourteen within it: DESCRIBING and RULING, stated; two no-go constructions STRUCTURAL, caged; four internal closures CLOSED; the calibration pass CONSISTENCY, not a test; the comparison of 13 September a MISS, published. §11 the value – REFUSED. §12 switches. §13 dated notes.

0.5 – Kill switches

Inherited: KS-35 (self-consistency multiplicity) and KS-36 (wrong value), from AP24 – the value's switches since AP24 locked; this paper adds none for the value. KS-4 ($\alpha \approx 1/137$) stands where AP15 put it, LIVE — HARD, passed to AP24 for treatment through the six faces. Registered here, ARMED: KS-ALPHA.1, the side/front switch. Registered, not armed: KS-ALPHA.2, the uniqueness obligation, fireable only once a normalisation exists. P-GLASS.1 is cited, not re-registered. Full statements in §12.

0.6 – Debts

D1 (AP24) unchanged: the first-principles derivation of α. D-EM.1 unchanged: what the running means. Neither is paid, moved or narrowed by this paper.

0.7 – Items held open, not booked as debt

Which boundary's η is the structural one: AP06 §9 holds the relation between ε_gravity, ε_cosmo and the electromagnetic 1/137 open; this paper derives nothing at any boundary and owes one sentence on why the electromagnetic boundary's reading is the one read at the neck. Held open and not booked, on 12 September 2026: it is not counted a debt, and a debt is owed by a derivation, which this paper does not make.

The three words for one object (§0.9).

0.8 – Refused, in advance and in §11

Any value for α. Any function of the counts (3, 4, 6, 16, 18, 21, 84, π) presented as α or near it. Any change to the partition, to G, to the proton or to the age. Any identification of the strong force with α or with the grab at the cut (the grab is AP53's neck; the strong force is one face, AP19). Any Planck normalisation $\alpha(m_P) = O(1)$ – under the Standard Model's one-loop running α is of order 1/100 at the Planck scale, not of order one. Any claim that readability, minimality or a balance selects the value: each is shown in §10 to close at every α.

0.9 – Vocabulary

One object, three words in locked papers: window (the front door, The Keys), gate (AP28, AP50), door (AP46). This paper says window throughout and reads the other two as the same. The material face is called resistance here, as ruled; it is AP24's Face 5, the two stiffnesses whose ratio is c^2, and not AP30's title. α with no subscript is the fine-structure constant in

this paper and nowhere collides with the stiffness ratio; where the stiffnesses are meant they are named as stiffnesses.

Two sixes, and they are different objects. The six readings of the grain – gravity, propagation, the coupling, mass, the material face and time – are the six that AP10 and AP24 fix, and through three dimensions they are the eighteen held. Separately, the gravity-and-resistance contest that AP46 §3 prices runs in each of three dimensions, giving six sites where a configuration snaps and reconnects. This paper calls the second the GR-six, a name given on 13 September 2026. The first keeps the name every locked paper gives it: the six readings. A matching label for it was declined, because the alternative proposed – record conditions – is already the name of the four, S, B, R and C, and a paper that has just reconciled window, gate and door should not mint a collision on the way out.

Bit, in two senses, and which is which. §9's Landauer bound is the standard one, and the standard one is stated per bit – a binary distinction, the logarithm of two states. That is the first sense, and it is load-bearing where it sits. The describing also uses it for the smallest unit of what light carries – what propagation delivers, as against what a configuration is. Both senses stand and neither is abandoned. Where this paper says bit it means the first. Where a describing beside it says bit it means the second, and says so there. A grain is neither: a grain is a configuration and a bit is not.

1 – The Axiom First

$$1{:}1 + 1{\times}\varepsilon \;@\; \mathrm{AS}\ [+1/137 \,/\, -1/137]$$

One record exists. Denying it writes another. Four conditions follow: Symmetry, Break, Record, Constraint. The 1:1 is the perfect symmetry. The $1{\times}\varepsilon$ is the break, held, never cycling, kept as small as possible. The AS is the now, from where the hold is read. The bracket is the flow around the held break: out as actualisation, back as defragmentation, net zero at every instant, but for the one grain.

Read the line again and see what it says about equality. $1 = 1 + 1{\times}\varepsilon$. The whole is whole and the electron is there. Imbalance is not an accident of the picture; it is the picture. Every equality this paper states between two readings holds up to that one grain, and §3 says so as a switch.

α lives in the bracket. This paper is about the bracket seen from the neck.

One note on the line itself, since this paper refuses the value. The 137 written into the bracket is the measured value set into the picture, not a derived one, and it has been written that way since the axiom was first stated. Where the structure is what is at issue, read the bracket as $\pm\alpha$.

2 – What α Is

Definition. α is the actualisation rate of the record in relation to the relative mass, gravity and resistance constraints at the now, and it is read from one perspective as phase coupling.

Take it a clause at a time. A rate – the opening and the closing of the eye, a fraction per frame, not a probability per second; the frame has units and the fraction does not. Not a count, not a length, not a duration. Of the record – what the now writes, readable only after the now, propagating under the constraint of C. In relation to mass, gravity and resistance – the faces of the grain that are held. The six faces are G, c, α, m_e, the material face – the two substrate stiffnesses whose ratio is c^2 – and t. AP50 §3 sorts them by operation: four are held (G, c, m_e and the material face), one is the holding (α), and one is the record of the hold (t). At the now – which is why α alone of the six has no units: the holding is the now, and the now never holds (AP50 §3). Read from one perspective as phase coupling – the work's own name for α_em, the U(1) phase of AP15.

Said plainly: α is what it takes to hold the break. Every break must be held or no record is written, the holding has a price, and α is that price. The structure requires a price. It does not say how large a price, and this paper does not either – that is the whole of §10 and §11. The requirement is read off the measurement; the forcing of it is what nobody has.

So α is the one reading of the grain that is not a landed quantity. It is the transparency of a window: how much of the rope one now lets through. The front door says it in six words – α is the moment of the cut.

Two things α is not, so the reader does not bring them. It is not the electron's size, though three characteristic electron length scales – the classical radius, the reduced Compton length, the Bohr radius – stand in successive ratios of α; those are the front-view shadow of the neck's ratio (§4). And it is not a frame rate. A frame rate has units. The picture's frame duration is the electron's tick, $\hbar/m_e c^2$, and its reciprocal $m_e c^2/\hbar$ is the rate (AP46 §5). α is the open fraction of the blink – how much of one rope one frame takes – which is why it can be dimensionless and the frame rate cannot.

Said as arithmetic rather than as a picture. The Coulomb energy evaluated at the reduced Compton length is exactly α times the rest energy, so over one tick that interaction expresses α times one record's action. α is that fraction: the action expressed in one frame over the action of one record. This is an identity under the work's own tick and its one-record-is-$\hbar$ identification, and it is caged as one – it carries no information beyond the definition. It is written here because it gives the definition above an exact numerator and an exact denominator.

3 – Two Views, One Window

Stand face-on to the neck and you see windows. Countless windows, countless ropes, trillions of grains actualising now, each window its own perspective, none sharing another's (AP51). Stand edge-on and you see no windows and one wave of rope, one neck, one grain cut. Same cut. Same now. Two readings.

The side view is a projection. Length is kept – a rope is 137 grains long from either side. Depth is lost – how many ropes, how many windows, is invisible edge-on. So the dark side's size is the number of ropes, and the rope's length is 137 whichever way you look. Growth is assigned on this picture to depth and not to length – more ropes, the same rope – and that assignment, not the projection alone, is what keeps α still as the universe grows. KS-ALPHA.1 tests it.

One window or a trillion does not make the now pass faster. The whole front face writes one layer of the record per tick. α does not count how many things actualise. It specifies the cut by which actualisation occurs. Three quantities, never to be mixed: how many windows fire, one frame, and the cut fraction – and the first can rise by any factor without touching the other two.

And the two views are not exactly equal. They cannot be, by §1. The side reads one grain the windows cannot: the pupil, the $+1\times\varepsilon$, the grain uncoupled in the one neck at every now (AP50 §8; AP51). The two views read one cut fraction and differ by exactly one grain per now, never more. That sentence is a switch, KS-ALPHA.1, and its test is stated here rather than left to §12: it fires if the number of windows firing at one now moves the cut fraction, or if the front-face event read as a whole differs from the side-view event by anything other than that one grain. It is ARMED and it does not know 137. Its empirical limb, and the attribution rule that keeps one measurement from firing two switches, are in §12.

Say it as the work will be asked to say it by a physicist: α is invariant under aggregation across windows at one now. Not under renormalisation – α runs from 1/137 at zero momentum to about 1/128 at the Z mass, and in perturbative QED the beta function is positive, so the only perturbative fixed point is at zero coupling. The invariance is across windows, not across energies. This paper reads $\alpha(0)$, the vacuum value, as AP50 §10 specifies; what the running means is D-EM.1 and untouched.

4 – The Rope, the Grain, the Rung

A rope is the wave through one window: what could happen next, relative to the record history, about 137 grains long. A held grain carries twenty-one of them. Eighteen are the record and hold. Three pull forward at the now and are cut, one per dimension: one grain, written through three windows.

There is no grain without ropes. The uncoupled grain – the one at the neck at every now – is not rope-less. Its ropes are all in place and, for the moment of the step, slack. That moment is the now. It never completes; the rope of that one grain is never pulled taut; that one step is always happening now. On every other grain the ropes are taut, and that is what holding is.

Which two sizes, then? Three characteristic electron length scales stand in adjacent ratios of α: the classical electron radius, about 2.8 femtometres; the reduced Compton length, $\hbar/m_e c$, about 386; and the Bohr radius, about 53,000. They are characteristic scales, not three measured radii of the electron, and the classical radius in particular is built from α by definition. The grain is one of these and the rope the next up. AP46 §5 rules the tick as the reduced Compton time – one reduced Compton length per tick – so, seen from the neck, the grain is the reduced Compton length and the rope is the Bohr radius. Rung two, from the side. That is a ruling on AP46 §5's tick, and it fixes a length AP50 §2 left as a unit: the grain's radius at the neck is the reduced Compton length (dated note, AP50 – §13). The first rung is not lost; it is the window's. From the window, the classical radius – α times the reduced Compton length – is the cut's width within the grain: how much of the grain one exchange engages. Both rungs give α, and which you see depends on where you stand. The side sees grain to rope. The window sees cut to grain.

A fourth reading of the same ratio, after the two rungs above and §2's action fraction. It is kinematic, and it needs one precision a physicist will otherwise supply. The ground state has no orbital current and no velocity of travel – its angular momentum is zero. What is exactly α is the characteristic momentum scale: the root-mean-square momentum of the bound electron, divided by its mass and the speed of light, is α to every digit in the non-relativistic Coulomb problem with a fixed nucleus, by the virial theorem – the reduced-mass correction alone is some hundreds of parts per million, and this paper argues elsewhere at a fifth of one. Read as a length, that scale times one tick is α of one grain. One thing it is not: the neck's cut. The neck passes a whole grain in a tick, which is the speed limit; a bound grain advances α of one in the same tick. Two readings of one ratio, two events, and the paper does not identify them. That is §2's fraction per frame written as a length: the part of the way to the next grain that one now gets through. Like the other three it is definitional – the speed follows from the coupling – and it derives nothing. It is given because it is the one a reader can hold without the picture.

The picture reads those scales as cut, grain and rope. That reading is the picture's, not a result borrowed from physics. It is consistent with the physics rather than confirmed by it: for an electron in the hydrogenic bound state the picture identifies the taut rope with the Bohr scale, an uncoupled electron's rope is slack and measures nothing, and the Bohr radius is a

bound-state length in any account, so its absence on a free electron could not have failed to hold.

5 – The Horse

The describing of the blink, as given.

A held grain has eighteen ropes on it, until now. Three ropes pull forward now, one tick at a time. The uncoupled grain is the moment the horse takes to make one step. Up with the leg – the eye opens. The rope is measured. A bit forward. Step – the foot comes down, the eye shuts. Every record is the eighteen ropes. The now is the horse stepping forward, where the rope gets measured and cut; the now is the three ropes being cut. And the uncoupled grain is the moment in the step where the rope is momentarily slack before it gets taut again. That one step is always happening now.

Writing and reading are one action at the now (AP52). When a grain is simply held – eighteen ropes taut, nothing being cut – the coupling configuration is in harmony: a white sheet holding its configuration until a line is drawn on it. Then the configuration changes, because the thermodynamic environment between the paper and the pen changed, and the coupling reconfigures (AP49 §3). The hold is the sheet. The cut is the line. α is how much of the rope one line takes.

Why the opening and the closing hold one rate, as described. It is a tug of war. The horse pulls eighteen ropes. The three front ropes pull the horse. Then the arena pulls back. Call it one and zero, or resistance and gravity. Gravity pulls and the substrate resists – pulling, resisting, pulling, resisting. Resistance is the material face: matter, the holding. Light is not a party to that war; it is what the information about it propagates under, the ruler the whole contest is read against (ruled, 13 September 2026). The zero wants to bend the one back towards it, to bend the one into a zero itself. The substrate resists and pulls back. The information on the interaction is bounded by the constraint. The rate must be one rate because a record needs constant constraints to be read and to couple; at a varying rate a reading would be inconsistent and a coupling impossible. And the push and the pull are also why there is a wave: the wave is the ripple of them.

The work already carries the same mechanism in its own words. AP46 §3 prices the hold as a live tug-of-war frozen at the rope's middle, both sides at full strength, nothing moving until one side wins, and the strain bleeding while neither does. The describing above and that mechanism are one thing said twice, and the paper claims no more than that they agree. The describing has since been extended – the arena's floor itself ripples, and a record is held on a moving floor – and that extension is a road, not a section: it is Road Fourteen, open, and nothing here rests on it.

One word to keep out: dormant. There is no state between the cut and the reading; the three are written and read in one moment (AP52). And observation stays AP51's landing – a photographic plate observes – or the twenty-one windows, and gravity with them, would come to depend on someone watching.

6 – One Number, Two Readings

The axiom carries a break, the 1×ε, and a flow, the ±1/137. Why are they one number? Because they are one thing read from two sides of one window. Read from the hold side, α is the grain's coupling strength to its neighbour as the coupling holds – the ratio of mass, gravity and resistance that measures how the grain is held relative to other grains. Read from the neck, the same ratio is the rate at which the now cuts. Same window, two sides. One precision, because §10's Road Nine forbids the loose version of this move: sameness of object does not by itself fix a numerical map between two readings of it, and if it did, Road Nine would not be closed the way it is. The numerical identity of the two readings is inherited, not derived here – AP06's Identification 6.1 and AP24 §3.1 make the break's coupling worth and the cut fraction one α. What this paper supplies is the hourglass reading of that identification: hold side and neck side are two faces of one window. Without the standing identification, sameness of object alone would leave room for a non-trivial map between them.

Per window, then, the two readings are one number. Over the grain they are not. A record being read now implies gravity active over all twenty-one windows, converging at the neck (AP28; AP53). Per window the transparency is α. Over the grain it is α^{21}, dressed by the aperture and the hold: $\alpha^{21}(1+1/\pi)/(1+\alpha)$ (AP44). The paper says per window every time it says the same, because a physicist who reads "α is the ratio of gravity to mass" sees $Gm_e^2/\hbar c$ and a claim off by forty-three orders.

The gravitational object, and why the agreement is arithmetic. AP01's Postulate G bounds the selection rate between two record sectors by their gravitational distinguishability, $\lambda \leq \Delta E_G/\hbar$, vanishing when the records are gravitationally indistinguishable. Applied to one grain at its own scale – ΔE_G about Gm_e^2/ξ, ξ the reduced Compton length – the bound is $Gm_e^2/\hbar c$ per Compton tick. Two cautions travel with that sentence. It is a bound and not an equality, and nothing here supplies saturation. And the gravitational self-energy difference depends on the profiles of the two configurations being distinguished, so the coefficient in front is a configuration factor this paper does not compute. What the bound fixes is the scale, not the number, which is AP28's object at AP46 §5's tick.

That agreement is recorded and it is caged, on the pattern AP46 uses for its closed-loop photon. From gravity, the electron's mass, the action and the speed there is exactly one independent dimensionless group, $Gm_e^2/\hbar c$. Any dimensionless relation built from those four alone can therefore depend on nothing else, up to a numerical coefficient or a function of that group. Two papers arriving at the same object is arithmetic and not evidence, and this paper will not present it as a coincidence that did not have to happen. What it does show is coherence: AP01's bound, multiplied by the Compton tick, returns AP28's coupling – one object read as a rate rather than as a strength, and the work is not carrying two different gravitational scales for the electron. A reader will recognise Postulate G as Diósi–Penrose, and the paper says so.

7 – Where It Acts, and What It Is Not

The three windows written at the now are where the cut acts. They are not what α is. α is the transparency of every window, the eighteen held ones included – AP46 §6 gives each held door one part in 137, and that is where α^{-18}, the cycle, comes from. If α were the three, the eighteen would carry something else and AP46 would lose its α. So this paper does not say α is three channels, or six at the cut and three at the hold. It says: one grain, written through three windows at the now, at α per window.

The phrase was ruled on 13 September 2026 and is recorded here because it has been read as a claim about α and is not one. Six at the cut and three at the hold counts ropes, not couplings: three gravity ropes, three resistance ropes – the GR-six of §0.9 – and three ropes of the Actualization State. Those are the three groups as given, and the paper adds no gloss to them; which group does the holding is AP50's question and not this paper's. A rope count and a coupling are different kinds of thing, and nothing in this section moves on the ruling.

Edge-on there are no counts at all. One neck, one rope, one grain, one tick, one return, two bulbs – the two sides of the hourglass, the potential above the neck and the actualised below it. Every integer the work produces – the three, the four, the six, the twenty-one – is a front-view object. If α is read from the side, it is not a count of anything. It is a shape or a rate: grain to rope, neck to rope, flow to leak. That rules out a whole class of derivation before anyone writes it (§10 Road Two).

AP45 rules the same fence from the other end and this paper inherits it. The denomination could not have been the constraint, because bounded propagation prices no crossing, and the constraint's reading sits among the nine channels that never close. The channel counts are geometry, fenced from arithmetic, generating no fraction, connected to nothing they do not name.

8 – The Neck's Reading and AP24 §5.4

AP24 §5.4 forbids the pupil reading itself, and it stands. Deriving is record-writing; α is the coupling of that act; you cannot measure the ruler with the ruler. This paper does not retract a word of it.

The window looks into the interior. The neck's view looks at the glass that holds the windows – the sheet, the arena, the held. The two perspectives are looking at different things: different qualities of the same reality, the same grain of sand. Read edge-on, α is a shape of the glass: the neck's aperture against the rope's length. A held quality, not the act of writing it. The glass can be read. That is the ruling, and the dated note on AP24 §5.4 carries it.

What the ruling buys, and what it does not. It answers the attack that a reading is a reading: the side view reads the held, not the now. The shape it reads is the shape as it is – the neck one grain wide by identity (AP50 §2), the rope 137 grains by the bracket – which is what α is. For the shape to be forced rather than read, the glass would have to fix the rope's length, and that is the second scale §10 says nobody has. The ruling and the paper's claim agree: this paper reads the shape; it does not force it.

9 – Entropy

The describing, as given.

The 1:1 is at zero entropy – no records, no time, the pre-state pure (AP09 §3; AP24 §1). This paper calls zero entropy the full potential of entropy: absolute stillness and absolute balance. Once the full potential of entropy has been achieved – absolute stillness, absolute balance – all that is left as potential is not-entropy: not stillness, imbalance. At the point of zero entropy, all that is left is the potential of the opposite, as potential itself. So the break is forced. One record exists. You reading this sentence is the proof.

One line so the term is never misread. Maximum entropy – the heat death, every difference spent – is the other end of the arrow and is not what is meant. Zero entropy is the pre-state; the full potential of entropy is its name in this paper; the describing also calls it absolute entropy, and the three are one thing.

Every record costs. Landauer's principle supplies the standard $k_B T \ln 2$ lower bound for logically irreversible erasure or reset; the work's stronger reading – that a cost of that kind is paid at every irreversible writing – is AP06 §4 and AP24 Face 6, and is the work's, not Landauer's theorem. On that reading the arrow of time is the cost accumulating. The loop returns the sand to Ø through the black holes (AP04; AP46 §10). Where the entropy written on the sand goes when the sand goes back was the one sentence this describing owed. If Ø receives the sand at zero, the second law breaks on the return leg. If the entropy is carried across – S conserved across the singularity – then that is where the answer lives.

The sentence is given. The ruling of 12 September 2026, as given: dark matter is a verb. It is the black hole defragmenting, and that defragmenting is entropy – the process down to the minimal unit, and the minimal unit in absolute balance and stillness is the endpoint of entropy. So the identification is between a process and a process, not between a measure and a substance. The entropy written on the sand is not carried back with it; the defragmenting is where it is spent. Dark energy receives the sand as pure potential, at the full potential of entropy, zero.

What that ruling does and does not do here. The describing this paper owed is paid, and the loop closes in the describing's own words. The ruling itself is an identification about the dark sector, not about α, and this paper makes no use of it: no argument in §§1–11 depends on it, and §10 is unchanged by it. The work already holds the reading the ruling needs: AP17 finds no dark-matter particle and AP42 reads the dark-matter share as a compartment of a process. Whether the construction satisfies the second law quantitatively is a separate question, requiring an entropy balance, and it is not derived here. It is registered beside KS-42.6, which already carries the dark-matter share rising against the baryons with time, and it is that switch's business and a future paper's, not this one's. It is set down here because it was owed here.

10 – What Does Not Derive It

This section is the register of every road to α's value that has been walked inside the work, with the locus of each and the reason it closes, so that no road is walked twice. One rule governed every road: nature decides, not arithmetic. No road was allowed to end in a search over functions of the counts. Where a small set of candidates was tried and reported negative, the set is named so that it stays closed.

One thing is not a road and is recorded here so no one enters it as one. The electron's three length scales stand in adjacent ratios of α (§2, §4). That is definitional – the classical radius is built from α – and no ratio among them can return α as a result.

The roads, twelve closed

One. The partition. AP42 builds the dark partition from the six, the twenty-one, and an exponential of their ratio. The wall's verification code has no α in it. Reading α off the partition is therefore not circular, and there is no α there to read. And the reason it cannot be read there is not dimensional – six over twenty-one is dimensionless and so is α. It is that nothing in the work maps the partition's occupancy ratio onto a window's transparency. The two are dimensionless quantities about different things, and no derived bridge joins them. Closed.

Two. The count. AP45 §6 rules it inside the family already: the channel counts are geometry, fenced from arithmetic, generating no fraction, and connected to nothing they do not name. That is a locked ruling and it is the primary citation here. Beyond it: every pure number the work produces is a count or a shape, and one hundred and thirty-seven is neither. KS-30.4's between-family search found 2,971 five-leaf formulas at the proton's accuracy; this paper adds α to no such list. The four invariants of the event graph and the held graph – the square roots of twenty-one and eighteen, and the line-graph radii eight and seven – were tried and none is near α; that set is closed and no further invariant will be tried. Edge-on there are no counts (§7). Closed by rule.

Three. The cycle turned round. AP46 §9 gives one cycle as $(21/18)\cdot\alpha^{-18}$ ticks. Read backward on the measured age it gives α to about 80 ppm, sitting 173 ppm above the measured value; the proton row needs α to about 0.2 ppm. Circular – the work gets the age from α – and four hundred times too coarse if it were not. Closed.

Four. Gravity read back. $Gm_e^2/\hbar c$ is AP28's object and AP44's realised formula; The Lock's $G = 2\kappa/m_e^2$ is the same equation by the bridge $2\kappa = \alpha^{21}(1+1/\pi)\hbar c/(1+\alpha)$, and the bridge is tautological in AP08's own words (§5.1: the coefficient has been relabelled, not independently derived; KS-I.3, KS-I.4). Read backward on measured G it gives α to about 1 ppm, 17 ppm above the measured value – the G row's -16σ wearing α's units. AP24 §3.3 says the same in its own words: the holding-limit form and the channel-count form are one equation. Taking G as the one measured input is legal and buys nothing. Closed.

Five. Gravity against the clock. Eliminate α between AP44 and AP46 and a relation remains between G and the age with no α in it, exponent 21/18. It is the two rows multiplied:

fed the measured age it returns G 0.33 per cent high; fed measured G it returns the age 0.28 per cent high, which sits at +1.9σ on the Planck bar while the age row itself remains at its own +2.1σ – the elimination adds no test, so the row is unchanged. It creates no test the two rows did not already carry, and it loses the attribution they keep. KS-CCC.3 and KS-STRETCH.3 own it; it is not a switch of its own. It is a large-number relation with a structural exponent; T is the cycle, a constant, so G does not drift. Closed as a road; recorded as a relation, with one property the separate rows do not have – it holds whatever the coupling is, so it tests the common rate without assuming the rate is the electromagnetic one, which is D-EM.1's question asked from the side.

Six. The holder recursion. AP49's chain, C = 21α + (16α/1836)·C, prices a unique total cost for every coupling and prefers none; the closed form reproduces the proton at +0.59σ for α as measured and a different proton for any other α. Closed.

Seven. The drip. Let each opportunity admit one grain or none, w the load of one grain, ℓ the maintenance per opportunity. A bounded store forces the admission fraction ℓ/w – too much and the load climbs, too little and it drains, the tipping picture in one line. It selects the fraction once ℓ and w are fixed by different things. They are not: in the work both carry the coupling, so the condition reduces to an identity in it. The flow-quantum is ruled one whole grain per now, read from the side, at the same rate at every window. On that ruling the admission fraction is fixed by the rope's length in grains, which is the bracket of the axiom and not something the drip determines. Closed by ruling and by the identity together.

Eight. The floor. AP06 §7.2 derives that the leak is positive, because finite c forbids perfect absorption, and identifies the value with the measured leakage, and says so. A field calculation of readability – the least error in telling two charged sources apart from their field record – confirms it: with unbounded repetition every positive coupling reaches any tolerance. A threshold above zero needs a resource rule and a tolerance; neither is in the work, and a resource rule taken from the hold would carry the coupling in it and select nothing. AP12 §1.3 is the same shape for ℏ: minimality pins the unit, not the value. Closed at zero.

Nine. The fixed point. AP24 §4.3 names ε = f(ε). The phrase means the self-consistency fixed point of the six readings here, and not the renormalisation-group fixed point of §3; the two senses are unrelated and the paper never mixes them. The six faces of the residual carry two pairings, both locked, and they are not rival readings of one relation – they are two relations, each derived for its own work. AP10 §5.1 pairs by axis: G with c, the substrate stiffness with α_em, m_e with t, the residual's cross-check on 3+1. AP45 §6 pairs by side: m_e with G, α with c, the substrate with τ, the balance partition that gives ten and ten plus the one. Composed, the two close the six into two three-cycles – G to α to t, and c to m_e to the substrate. Every arrow in both is a translation between readings of one object, so the map composed around each cycle returns its input, and every coupling is a fixed point; AP24 §3.1 calls the relations tautologies and is right. An explicit family shows it: for any q define $\varepsilon_0(q)$, $\kappa(q)$, $G(q)$ from q and every displayed relation holds. One precision, because the closure is narrower than it looks: the permutation closing is combinatorics about labels, and a permutation of labels is not yet a quantitative map between dimensional readings. The cycles compose to the identity because AP24 §3.1 makes every arrow a translation, and if any arrow

instead carried an independently derived normalisation the composition would not be the identity and a numerical fixed point could arise. So the road is closed at the relational level and no further, and it reopens the day one arrow is a law rather than a dictionary entry.

Ten. The earlier thread. From private notes. $\tau \times t_H \times \alpha = 0.999$, a tautology. $V \times t_H = 1$, the construction. $(V+D)/\alpha = 2t_H$ plus 1.6 per cent with no source. A race between c and G giving 137, off by forty orders. $1/\alpha \approx t_H + \tau(t_H-1)(1-e^{(-t_H/\tau)})$ at 137.376, the form chosen after it landed. The same with $-1/3$ at 2 ppm, the 1/3 having three sources and therefore none. And α = cycle + black-hole leakage → expansion, closing on magnitude (the horizon leakage is 10^{-17}, AP06 §1), on category, and on α's absence from the partition. All withdrawn on the prior-derivation test. Closed.

Eleven. The material face. Two stiffnesses whose ratio is c^2 admit two independent combinations; the electromagnetic vacuum reads the second as an impedance, and α is that reading in the grain's units. The impedance reading cannot be turned into a measurement route: since the 2019 redefinition the elementary charge and $\hbar$ are exact, so the resistance quantum is exact and the vacuum impedance is known only as well as α is known, being proportional to it. Reading α out of it returns what was put in. Asked whether the picture reads a second thing from the two stiffnesses, the answer was the axiom's balance and its one-grain residual, and it named no second reading. Closed as an empirical inversion, by the definitions, and closed on the stated reading that the picture names no second reading. Not closed as a first-principles problem: deriving the substrate's normalisation from S, B, R and C without α is not this route – it is the missing second scale itself, and this paper does not have it. Road Nine's missing edge-law and this road's missing normalisation are one object seen from two sides.

Why five of the roads close alike

The roads close for their own reasons. Five close alike, and the likeness is worth stating – but it is narrower than an earlier draft of this section claimed, and the narrowing is on the record rather than quietly done.

Withdrawn. An earlier draft argued that an equation in the coupling whose coefficients are the picture's counts cannot have a root at α, on a standard bound on the roots of a polynomial. The argument required every coefficient to be of order one, and the same paragraph listed eighteen hundred and thirty-six among the coefficients. With that admitted the bound's lower edge falls to about one in eighteen hundred, and α sits well above it: the bound does not exclude α. Nor is the class thin. Quadratics whose coefficients are products and ratios of the picture's own counts produce roots at α's value in quantity – thousands within one per cent, dozens within a hundred parts per million, two within one. The sentence "that class has no member with a root where the value is" was false, and it is withdrawn.

What survives, and it is the spine. The five roads as actually built were made from single counts and simple shapes, and not one of them landed. The closest any of them came to carrying a coefficient of α's size is the holder recursion's sixteen over eighteen hundred and thirty-six, which is α times 1.194 – nineteen per cent away, and it did not land. The others

used coefficients that are not α either: one over eighty-four pi is α times 0.519, of α's order and not at it, and six over twenty-one is α times thirty-nine. What the graph invariants actually returned was a fifth, a quarter, an eighth and a seventh – used and returned are different things and this paragraph had them interchangeable. Two of the five reduce to identities in the coupling and return no root whatever. The five are the tipping condition, the holder recursion, the readability threshold, the fixed point and the graph invariants – named here because the Conditionality Footer's firing condition depends on which five they are. That is one failure, five times, and the same one. It is a statement about what was built. It is not a theorem about what could be built, and this paper no longer offers one.

The abundance that broke the theorem is a finding in the other direction, and it belongs to §11.

Twelve. The ledgers. Read per tick, the cut costs α-worth and the hold leaks α to the eighteenth; both grow cheaper as the coupling shrinks, so nothing pushes back and there is no balance to strike. Read per cycle, one window makes α to the minus eighteenth cuts at α-worth each and something does push back – but setting that spend against one grain shed per cycle gives an equation whose root is at α only if a structural number of about two times ten to the thirty-sixth exists to put on the other side. The picture produces no count within thirty orders of magnitude of it. Closed on the size, which is the whole of the argument and needs nothing else. Closed for this ledger construction and for the work's existing structural numbers: an independently derived scale of that order would be a new road, not a rescue of this one. Which ledger the break is kept small in therefore does not bear on the value, and the question is answered by being made irrelevant.

The two roads that are open

Thirteen. The running. Two things have been called one road here, and they must be separated before either is judged. AP24 §5.2 names Path 1: start where the coupling is of order one, run it down with the charged spectrum, land. AP24 calls the path rigorous and calls the spectrum a Notebook V programme.

The toy route is closed. Its boundary condition is a coupling of order one at the Planck scale, and ordinary Standard Model running does not produce one there, which is why §0.8 refuses that normalisation. The size of the shortfall is a diagnostic and worth recording, so long as it is not read as a prediction: in the toy's single-coupling convention, forcing that boundary to land on α at the electron would require an effective coefficient near 16.6 against about 10.7 from the charged fermions counted the same crude way. That gap is evidence against the toy's boundary. It is not a measurement of missing particle content, because the coefficient is not a count of charged stuff – spins, representations, charged vector bosons pulling the other way, thresholds and the electroweak mixing all enter it, and above the weak scale the honest treatment runs the electroweak couplings rather than one electromagnetic coefficient. AP24 §5.6 said the toy was not the full function; this is the arithmetic of how far it is from being it.

The general route is open. Derive an ultraviolet boundary value from S, B, R and C. Derive the charged spectrum. Let the flow carry the one to the other. That route is listed here so that no one reading §10 alone concludes it was closed. It is the only direction the work has ever looked in that is neither a count nor a power of the coupling against another power of it. AP24 §5.3 points at it from the same side, because it points at the renormalisation-group flow as the place a non-algebraic value can arise, and the logarithmic scale dependence lives in that flow's integrated solution. D-EM.1 owes what the running means for the work's α. Three pointers, one road, open and owned elsewhere.

And the price is exact about what is owed. What the flow supplies is the map. It does not supply the ultraviolet boundary value and it does not supply the spectrum, and those two are the whole of the outstanding derivational content. The road is open at the machinery and shut at both ends. It is falsifiable at the spectrum before it is ever falsifiable at the number, and it is not this paper's.

Fourteen. The ripple. The describing of 12 September 2026, ruled on the same day. The arena is not still. Gravity deforms the substrate and the substrate resists, and the deformation that opened at the break never settled – it settled into a beat. The beat is what the landings sum to – every landing one beat, the rate of the beats the tick – so there is no phase of it that any site reads. The floor of the arena ripples like the skin of a drum. A held configuration is therefore maintained on a moving floor, and maintaining it there costs. The same ripple is what carries a window through its opening and its closing: without it the window would settle open or settle shut, no next grain would pass, and the tick would stop.

The ruling, and it is what holds every frozen row in place. The ripple is the cause of a cost the work has already priced. It is not a new cost. AP47 and AP49 booked it; this says why it was there to book. No number moves anywhere, the pre-registration stands as written, and KS-HOLD.1 is untouched.

What it supplies, and it is real. AP49's chain says every holder must itself be held and each costs a share of the last. It does not say why the first holder costs at all. The ripple answers that: because the floor beneath it is moving. It also says why a static census would miss such a cost at all. A symmetric vibration averages to zero at first order and costs at second order in its own displacement, so a census that counts the mean configuration correctly misses the variance around it entirely. That is the shape of the omission the neutron's firing exposed, and the work had the bookkeeping for it before it had a reason. It is not the same thing as putting the term at second order in the coupling, and the paragraph below says why not.

It also gives a reason for where the work's costs sit that does not depend on the shape of the wave. Any smooth crest with non-vanishing curvature, touching a threshold, opens a window whose width goes as the square root of the excess above it; a flatter crest scales otherwise. So a first-order window needs only a second-order excess, whatever the waveform. The work's own pattern – a first-order coupling with second-order costs standing behind it – has that geometry underneath it. It is a rhyme and not a derivation: it says why such a split is natural, not that the work's particular second-order terms are that excess.

And the road repairs the worst problem in its own first describing. A rope read as one slow wave a hundred and thirty-seven grains long would have to travel at a hundred and thirty-seven times the speed of light. Read instead as the coherence of the hold – the carrier staying at the electron's tick while the held configuration keeps its phase history for one over the coupling of them – the long scale appears with nothing exceeding c. That reading is conditional on the loss per tick being the coupling itself, so it accounts for the ladder's structure without supplying its size.

Why it is not a road to the value, and this is shown rather than argued. Write the ripple as a substrate field carrying an overall response normalisation in front of its Lagrangian, with a grain coupling to it at some strength. The free equation of motion does not contain that normalisation at all. Normalise the field canonically and exactly one quantity moves: the grain's coupling divided by the square root of the substrate's response. So the free dynamics – the propagation speed, the free frequency, the phase structure – are unchanged across a continuous family of couplings.

Two things are not, and the paragraph is narrower for saying so. The amplitude of the ripple, once grains are sourcing it, moves with the normalisation, and a hold cost depends on the amplitude. So does a threshold gate's open fraction, which is what the coupling is: change the amplitude and the window opens for longer, which is a moved closing time. The no-go is therefore about the free dynamics and not about the whole picture. The free part is blind to the parameter; the gate and the costs are not. A describing of the free part can be entirely right and settle nothing about the value.

The one-record-is-one-quantum-of-action condition does not close it either. That fixes the unit. The matrix element through which a grain actually couples carries the same square root, so the fraction of the unit involved in one exchange stays free. And the obvious dynamical closure fails on its own arithmetic: a driven ripple in steady state delivers exactly as much power as it loses, for every value of the loss coefficient. Stable cycling says the universe can keep the ripple running. It says nothing about how strongly one grain couples to it. That is Road Seven's identity again, in other clothes.

Found twice, by different mathematics. A second construction reaches the same obstruction from the discrete side, and it starts from less. Require only that the one-cycle return map have no preferred phase origin – which is S, not an assumption – and the map is forced to depend on the amplitude alone. Take its lowest non-trivial order and the still arena is an unstable fixed point while a finite ripple is a stable one, which is the describing's own claim in dynamical form rather than an extra premise. Now count. The map has four parameters: the drive, the saturation, the window's response and the phase advance. Rescaling the amplitude is a change of coordinate and nothing else, and it removes exactly one of the four. Three survive it, and the coupling is a product of two of them. Nothing in the construction fixes either. An earlier draft of this paragraph said that exactly one combination survives, which is false – the drive survives on its own, and so does the phase advance – and the correction is printed rather than made quietly. What is true is the count, and the count is the no-go: the coordinate freedom is one parameter's worth and the unknown is more than that. The field calculation reaches the same wall by a different road, which is worth

something; the two constructions are not the same theorem and this paper no longer says they are.

Two smaller reasons stand behind that one. The drive is the coupling: with any loss at all an undriven ripple decays, so the ripple must be driven, and what the potential side delivers to one window in one tick is the cut fraction. And the variance fixes an order and not a value: the cost goes as the square of the ripple's amplitude, so for it to land at second order in the coupling the amplitude must itself be of the coupling's order, and nothing in the picture supplies that.

What the road does supply. The missing quantity now has a physical name instead of a placeholder. It is the response of the moving substrate to one grain – how hard the floor is to couple through at the actualisation frequency. Written the ordinary rationalised way, the coupling is the square of that response over four pi, which is to say the question has become what fixes the charge. Physics leaves it in the same place and says so. That is not progress towards the value and the paper does not present it as such. It is the first entry in this register that names the missing second scale rather than only saying what it is not.

Four closures found inside this road, recorded so none is walked twice. Energy balance selects nothing: if one landed grain replenishes the ripple that released it, the coupling cancels from both sides and a ratio of inertias is all that is left. A complete coherent flip per tick is not it: a full two-state swap in one tick needs a coupling of π over two, which is of order one and not of α's. A driven passage through an alignment with a latch selects nothing either: the outcome depends on the coupling squared over the sweep rate, so any coupling whatever is reproduced by choosing the sweep. And the tempting mechanical reading of the axiom line – the excess over exact balance read as the break, the release fraction read as the coupling – forces the coupling to two over π squared, about a fifth. Dead on its own arithmetic.

The calibration pass, and why it is not the test. The ripple was run against the proton's second-order term and the neutron's flip cost, and it reproduces the form of both. It does so using the work's own counts – the twenty-one, the sixteen, the eighteen hundred and thirty-six, the two orientations, the four dimensions – every one of which was fixed by AP30, AP47 and AP49 before the ripple existed. Recovering a form from the numbers that fixed the form is a consistency check, and consistency is worth having. It is not the test. The test this road must pass is the one stated below: those corrections without their coefficients.

Two fences, recorded so the next desk does not build over them. A loss going as the square of the motion leaks more when the ripple is larger, while AP44 and AP45 shed one ε per now, flat, whatever the crowd; those are different laws and the discrete one is the locked one. And a drum head that rises and falls as one is a universal clock, which AP52 has live switches against – the picture survives only in its own terms, that the vibration is the now, shared by every window and read by none, while the ripples a site can actually read travel at one grain per tick, which is c. No fork is needed there, and an earlier draft opened one in error: §3 already rules that a trillion windows firing at one now is one grain edge-on, so unison puts nothing extra through the neck. The ruling is the first sentence and no more.

Open, with its price and the order of the work stated. The ripple is a mechanism, and the work has no other account of why a hold costs at all, so the road is not closed. Before it is ever asked about α it must recover the proton and the neutron correction blind, from the ripple alone, without their measured coefficients. That is its own paper and its own switch. If it cannot pay that price it explains the picture and derives nothing, which is an honest outcome and is stated here in advance rather than discovered afterwards.

The price was attempted on 13 September 2026, and the road did not pay it. A construction was built from the lodged describings, frozen and hashed before any comparison, its digest carried with it and recorded on receipt by a desk that had not built it, and compared there. What the instruments page timestamps is the record of when each file was lodged, and this paper asserts nothing beyond what that page shows. The construction reproduced the form of both rows. Every count in it, however, coincides with a decomposition the work had already locked, and the writing desk disclosed in advance that it had spent two days with those decompositions. A form recovered from the numbers that fixed the form is what the calibration pass already was.

And the comparing desk found the steering, in the place the construction itself nominated. The construction's one argument that was not already in a locked paper was that time enters the support as a fourth axis, because a re-establishment is an event and events happen in time. That is precisely the fourth axis the work's own decompositions already carry. Worse, it was applied only where it lands: a first hold is also an event, and the work prices a first hold without that fourth axis, which the construction avoided by declining to derive the first-order term at all. Disclosed as non-blind, and still steered.

The one new claim in it failed. The construction predicted that a particle's escape support and its re-establishment support are different numbers. That prediction holds only under a reading of the leakage geometry the work does not use, and under the reading it does use the two supports coincide at the neutron. The construction also reached for a full solid angle, where the work's own geometry is the grain over the disc of its aperture. Dead at the neutron, on the work's own reading.

What survives is the cause and not the coefficients. A hold on a moving floor is re-established rather than maintained; a re-establishment is a writing; writings cost; and the cost compounds because each re-establishment must itself persist. That is worth a dated note beside the two papers that book those costs without explaining them. It is not a recovery of anything, and this paper does not present it as one.

Two ways remain to pay the price, and both are named rather than promised. A genuinely blind formalisation, by an instance with none of the work and no paper numbers in front of it, under the sealed-envelope discipline the work already uses; every desk that has worked on this road is now disqualified from that route. Or a prediction about a configuration whose coefficients are not on the wall, the deuteron being the obvious one. Until one of those is done, Road Fourteen is a mechanism and not a route, and the register carries it as a miss published rather than as a road still being walked.

The two open roads are open in different senses, and the difference should not be left for a reader to work out. Thirteen is open in the strong sense: pay its price – a boundary value and a spectrum – and a value follows. Fourteen is open in a weaker one: pay its price and what follows is the missing scale with a physical name and two candidate identifications – AP15's KS-31, the conserved balance between wave-side coherence and field-side connection, and AP43's owed normalisation of its lean coefficient – not the value. Its own result proves the picture is blind to exactly that parameter. It is on the register because it converts a placeholder into a named object, which is progress of a kind, and not because walking it reaches the number.

One correction carried from the describing, and it comes from C. The ripple is one grain per tick and a rope is many ripples. A ripple one rope long per tick would travel at a hundred and thirty-seven times the speed of light. So the coupling stays a ratio of two rates – the tick against the completion – and not a count of anything.

What a live route would have to contain

Counting does not land on α. It reaches α's order easily enough – sixteen over eighteen hundred and thirty-six is α times 1.194 – and the register records why none of those approaches lands. What counting does not supply is a dependence on scale. One family of functions does, through its integrated solution, and it is the exponential and its inverse. The work has exactly one exponential, in AP42's partition, and Road One records that it contains no α and is spent. Road Thirteen is the other place such a function appears, and there it is the running.

The work said this before the hunt began, and said which transcendental. AP24 §5.3's necessity claim about irrationality is withdrawn by the dated note of §13; what stands is the weaker observation it also makes, that a fixed point of a map built from the renormalisation-group flow is generically non-algebraic. The flow law itself carries no logarithm; its integrated solution is where the logarithmic scale dependence appears. Road Thirteen is that same door named as a route. It is a convergence and not a plan, and it names the debt, because the beta function is the running and the running is D-EM.1.

This is not an instruction to look for another. A form chosen because its exponent lands is the fit of §11 wearing a better disguise than most, and the register of §11 exists for exactly that case. An exponent would have to be argued from S, B, R and C, written down, and lodged before the value is consulted. Under the protocol, and not otherwise.

It is recorded for a second reason, which belongs to physics and not to the work. Renormalisation-group evolution is an established mechanism by which a dimensionless coupling at one scale fixes its value at another, through logarithmic dependence on scale. That is the kind of non-algebraic map the counting routes lack. It is not a claim that α is of order one high up and driven small by running – α in fact grows with energy, and running it up on the one-loop estimate used throughout this paper, with the Standard Model's charged fermions and no thresholds, puts its inverse near 50 at the Planck scale. Fuller treatments, which carry the thresholds and the W contribution pulling the other way, put it nearer 100.

Both are far from one, which is all this paragraph needs, and the same crude convention is used wherever this paper quotes a coefficient. What running supplies is the map. It does not supply the ultraviolet boundary value or the spectrum, and those are Road Thirteen's price. D-EM.1 owes what all of this means for the work's α, and the work claims no more than that the two point at one door.

What is left

One demand in five vocabularies: a second scale, dimensionless, fixed by S, B, R and C, that is not a count and does not contain α. The material face's second reading (Eleven); a maintenance cost in grains (Seven); a field-to-charge normalisation (Nine); a resource rule and a tolerance (Eight); the magnitude of the irreducibility S forces, as a fraction of cycle activity. These are one object in five dresses – AP24's D1 throughout this paper, where the bare label is used – and Road Fourteen has put a sixth and better name on the same object: the response of the moving substrate to one grain. That name is worth more than the other five, because two items already open in the work may be the same thing said in their own vocabularies – AP15's KS-31, the conserved balance between wave-side coherence and field-side connection that AP15 names as owed and does not exhibit, and AP43's owed normalisation of its lean coefficient – not AP43-D1, which is the relativistic form and a different debt. Three open items in three papers, written apart and for different reasons, possibly one missing normalisation. The paper claims no more than that they are candidates for identification, and records them so that the next attempt starts there rather than at the counts. Nobody in this body of work has the object itself. AP24 §5.4 says it is not reachable from within, and says the check from without needs a normalisation, a spectrum or a boundary condition – which is Road Thirteen, with the spectrum as its price. This paper does not retract that and does not supply it.

One clarification about what is being asked for, because the demand above is easy to over-read. The missing object is the second scale, and a scale that already contains α would be circular. A selecting equation is a different thing: it will of course carry α as its unknown, and it may perfectly well carry the picture's counts as coefficients. What it may not do is carry a coefficient whose size was set by knowing the answer. The test is the provenance of the coefficients, not their pedigree as counts.

What this paper adds to §5.4 is an accounting rather than a theorem. Twelve roads are closed, each for a stated reason. Two are open, each with its cost stated, and neither is this paper's. And the class of forms that land is large enough that landing carries no information at all, which is §11's business and the reason §11 exists.

A tolerance derived before any formula is that second scale. A tolerance set after a formula is the look-elsewhere effect wearing a band, and KS-30.4's 2,971 formulas become 2,971 confirmations. Derived first, or not at all.

What this section is not

It is not a proof that α cannot be derived. It is a register of what has been tried inside this body of work and why each attempt ended, together with the one structural reason most of them ended the same way. A route that contains something the work does not yet contain is untouched by all of it.

The work stands at one measured dimensionless input, as AP24 §5.5 left it. Which input it is may be chosen – Road Four shows the coupling and the gravitational ratio are interchangeable through AP28 – but the count of inputs is one either way, and no road in this register reduces it to none.

11 – The Value, Refused in Advance

This paper claims no value for α.

The chain of custody. The value has never been claimed at any link in the work, and every link says where it goes next. AP15 derives that ε couples to the connection with some strength, states that symmetry, dimension and conservation fix the action only up to that coupling – which is the standard position and not a private difficulty of this body of work – and hands the value on by name to AP24 and AP28, under KS-4 live and hard. AP24 takes it up through the six faces and leaves it determined but not derivable from within, at §5.4. This paper registers every road walked since and refuses it. Three locked papers and this one, and no link assumed the number quietly. That record is the answer to the charge, and it is on the page rather than in anyone's recollection.

The picture is seen and described eyes open. That is his method and this paper does not bind it. Nor does it bind the direction. The road may run from his description to a figure, or from a candidate form to his structural check of it; he has ruled that the route matters less than the road, and that the only goal is to clear the road. What is bound is what happens between a construction and a comparison, because that is the only place a number can steer a form without anyone seeing it do so.

So, if a value is ever sought, it is sought under PROTOCOL-alpha-value, filed beside this paper. Every form tried, whoever proposes it and whichever way round, is entered in a public register with its date and its landing before it is compared, so that the look-elsewhere denominator is known – KS-30.4 found 2,971 five-leaf forms at the proton's accuracy, and that number is the standard any α form must beat by structure and not by digits. A form's structural reading must be one the work already rules, not one written for the form. The construction is frozen and lodged with the independent verifier before the comparison is run, and the comparison is run by a desk that did not build it. KS-35 and KS-36 adjudicate. The result is published hit or miss.

The denominator, measured. A second desk, testing the bound §10 has now withdrawn, constructed a form that lands. It was built to break a sentence and was never offered as a candidate; it is entered in the register as R1 with outcome VOID, which is what a register is for. What it showed is the size of the field. From a pool of coefficients made of the picture's own counts, quadratics alone produce 5,883 positive roots within one per cent of α, 35 within a hundred parts per million and 2 within one. Roots are not equations: the pool contains a number and its multiples, so one equation appears several times over. Normalising each quadratic by its leading coefficient and comparing the results exactly, rather than in floating point, collapses those to 3,763, 17 and one. The two inside a part per million are a single quadratic and eight times it. The distinct counts are the ones this paragraph rests on. KS-30.4's 2,971 five-leaf forms at the proton's accuracy were the standard; this is a harsher one, because a quadratic is simpler than a five-leaf form and the coefficients are the work's own numbers. Those counts are a denominator and not a test of significance, and two further facts belong beside them. None of the enumeration's forms is shown, here or in the register, because nobody proposed them – they were generated only to measure a field, and

displaying one would be supplying a candidate that never existed. Forms tried and abandoned along the way are a different case and are disclosed in full at Road Ten, which is what a register is for. And none of them – not even the closest, which sits six tenths of a part per million away – falls inside the proton row's own bar of about two parts in ten million. The abundance does not threaten the work's standard. It measures the field the standard has to be judged against. A form that lands therefore carries no evidential force on its own. It acquires force only if the order of construction and comparison was fixed beforehand, because that ordering is the one thing that stops the value steering the form. Pre-registration does not make a theory true. It makes a landing mean something.

One entry stands in the register already, and it is not a form. On 13 September 2026 a construction for Road Fourteen was built, frozen and hashed before any comparison, its digest recorded on receipt by a desk that had not built it, and compared there. What was lodged and when is what the instruments page records; no claim is made here beyond it. It proposed no value and produced none. Its outcome is recorded as a miss, with the comparing desk's finding that the construction was steered in one identified step, and both the construction and that finding are published. That is what the register is for, and the first thing in it is a failure of the work's own making.

A value found by any route is admitted only after it survives the protocol. The protocol's separations are the only protection there is.

12 – Kill Switches

KS-4 (AP15), standing. $\alpha \approx 1/137$. LIVE — HARD, where AP15 put it and where AP24 took it up. This paper does not move it.

KS-35 and KS-36 (AP24), inherited. Multiplicity and wrong value on $\varepsilon = f(\varepsilon)$. Unchanged. They fire, if ever, on a computation run under §11.

KS-37 (AP24), standing. Independent variation of the constants: find G varying without c or α varying and the six-face identity is falsified. LIVE — EMPIRICAL. It and P-GLASS.1 are neighbours rather than limbs of one another: KS-37 tests whether the constants vary independently of each other, P-GLASS.1 whether $\alpha(\mathfrak{N})$ varies across the record. This paper adds nothing to either.

KS-ALPHA.1 — the side/front switch. Claim: the two views read one cut fraction and differ by exactly one grain per now, the pupil, and by nothing more. Test: structural — if the number of windows firing at one now moves the cut fraction, or if the front-face event coarse-grained differs from the side-view event by anything other than that one grain, α does not belong to the one Actualization State. Status: ARMED. Recovery: §3 falls; §2's definition survives as a per-window statement; the work is unaffected. The switch does not know 137.

KS-ALPHA.1, the empirical limb. In a laboratory the number of windows firing at one now is the local density of matter — how much is actualising in a region, not where the region is. Depth of potential is deliberately not part of the proxy, because potential depth is a function of position and position belongs to P-GLASS.1. Attribution is fixed here, before any measurement rather than after one: one datum does not fire two switches, and a firing is assigned to KS-ALPHA.1 only if the dependence tracks density or multiplicity rather than location in the record. Status of the limb: PROVISIONAL. The obvious comparison — a terrestrial atom against a white-dwarf photosphere, at parts in a hundred thousand — varies density and position together and cannot discriminate, so it fires neither switch as this rule stands. The limb is registered without a design, and it becomes live the day an observation varies density materially at one position in the record. Registered provisionally rather than dropped, because the attribution rule is the thing worth fixing in advance.

KS-ALPHA.2 — the uniqueness obligation. Claim: if a normalisation of the neck is ever constructed under §11, it is unique. Test: two inequivalent normalisations satisfying every stated condition and returning different couplings. Status: REGISTERED, not armed. It is a proof obligation and not a test nature can run, and it stays that way until a normalisation exists to be tested; it is registered so that the obligation is on the record rather than discovered later. Recovery: the picture does not derive α; §10 already says so.

P-GLASS.1 (AP51), cited. No variation of $\alpha(\mathfrak{N})$ across the record. §3's invariance across windows at one now is what P-GLASS.1 needs and this paper adds nothing to its firing rule.

13 – Dated Notes This Paper Triggers

Each locus quoted verbatim from the file it was read in. The notes on AP12, AP24 and AP30 were booked on 12 September 2026 and are published; the remainder are booked at this lock.

AP12 §1.3 Steps 1 and 4 – Stone's theorem misstated; a minimum unitary evolution assumed; §1.3 regraded from DERIVATION to IDENTIFICATION on a stated rule, by construction; KS-Q.8 closed on that rule; KS-L.4 stays LIVE.

AP24 §4.1 – “at most one solution” withdrawn; §3.1 stands. AP24 §5.3 and §5.5 – “necessarily irrational” withdrawn; “generically” stands as interpretation. AP24 §5.6 – the toy model's arithmetic corrected: 1/11.9 not 1/23 with b = 4/3; 1/220 not 1/137 with b = 26.7; $\alpha(m_P) = 1$ contradicted by the Standard Model's running. AP24 §5.4 – the scope ruling of §8 recorded beside the panel's logical point.

AP46 §3 – the statement of 13 September 2026: the gravity-and-resistance contest that AP46 already prices runs in each of three dimensions independently, giving six sites at which a configuration snaps and reconnects. The pair is AP46's and locked; the only new content is that the contest is three-fold, and the note carries that and nothing else. Named the GR-six (§0.9) so it is never confused with the six readings. No number moves.

AP50 §2 – the grain's radius at the neck, ruled a unit there, named here: the reduced Compton length, $\hbar/m_e c$, on AP46 §5's tick (§4).

AP46 v1.5 – the standalone paired on the wall with the dated note of 4 September on KS-45.1.

AP30 §6 and AP47 §4, the isotropic-leakage lemma – a reading question raised 12 September 2026, not a defect found. The factors are one over eighty-four pi at the proton and one over eight pi at the neutron. A first version of this note, written 12 September, offered two readings of those factors and asked the papers which they meant. Both readings were wrong, and the note is corrected here rather than left standing. The corrected reading is taken from a desk's standing canon anchor for AP30 §6 and AP47 §4 and not from a reading of those files on the day, and it is owed a check against them: the eighty-four is twenty-one channels through four spacetime dimensions, the eight is two orientations through the same four, and in both cases the pi sits beside that count rather than inside it. AP49 names both as pi-dressed leakage divisors. Neither factor is a support against a full solid angle, and the pi is not a sphere – the work's own geometry is one grain over the disc of its aperture, which AP50 §2 rules. The papers owe no clarification. The correction was owed here and is made, with its provenance stated at the strength the record actually supports and no higher. No number moves.

A phase derivation of the same pi was proposed the same day and does not close. It obtains one over pi by setting the ripple’s phase advance to one radian per tick, which is a choice of units for an angular rate rather than a derivation; and the only phase rate the work states for the electron’s own oscillation is two radians per tick, which would give two over pi and break both matches. Recorded so it is not walked again.

AP43 §5 and §7 – two notes, drafted 13 September 2026 and carried in their own instrument beside this paper. First, the lean coefficient's unit is fixed without α: its dimensions are length cubed over time squared, and from the electron's mass, the action and the speed exactly one combination has them – the action times the speed over the mass, equally the grain's own length cubed over the tick squared. That pays the unit of a normalisation AP43 records as owed and leaves a dimensionless multiplier. Second, a correction of one sentence: AP43 says its normalisation is not free because the pointwise accounting has fixed it against the source. The exact statement is narrower – once the source coupling is specified the solution's normalisation relative to it is fixed, but Premises 1 to 4 do not determine the source coupling, and the coupling and the lean coefficient are continuously degenerate in the probe-limit equation as written. No number moves on either note.

The ripple – the describing of 12 September 2026 and the ruling that it is cause and not new cost, lodged with its date; Road Fourteen carries it and no frozen row moves on it.

The registry – AP24 books D1 as its single load-bearing open question and this paper cites it unchanged; if the registry's debts table does not carry D1, the entry is owed there rather than withdrawn here.

KS-42.6 — the ruling of 12 September 2026 as §9 prints it — dark matter is a verb, the black hole defragmenting, and that defragmenting is entropy, a process identified with a process — registered beside the switch that already carries the dark-matter share rising against the baryons. Not a claim of this paper (§9).

The wall – three loci on the α^2 coefficient, superseded by AP49: the prereg rigidity paragraph and the front-page Ø Physics line, both corrected; and the prereg's erratum E4, which is a dated record and takes a note beside it rather than a correction. Texts are in the site pack. Also for the wall: the front-door line on ropes – one rope per window, twenty-one per grain.

14 – Closing

α is the moment of the cut. Read from the neck it is one number: how much of one rope one now lets through, the same at every window, the windows and the neck differing by the one grain that keeps the break open. Read from the hold it is the same number: how tightly one grain is held by the next. Over the whole grain it is that number twenty-one times over, and that is gravity.

Its value is measured. Twelve roads to deriving it were walked and every one closes, for reasons this paper names one by one – several of them because the condition they offer is satisfied at any coupling and so selects none. Two are open and neither is this paper's: the running, with the spectrum as its price, and the ripple, open as a mechanism awaiting a blind test and closed as a road already walked, its price attempted and not paid. What would close D1 is a second scale the axioms have not supplied, and the paper says what it would have to be and what it would have to not be.

The axiom is 1:1 + 1×ε. The cut is α. The hold is α twenty-one times. The value is the one measured input, and now you know why.

Don't be a cunt. Be kind.

Claim Summary

§2 – Definition of α. RULED. §3 – Two views, one window; invariance across windows at one now; the one-grain difference. STRUCTURAL, switched (KS-ALPHA.1). §4 – Ropes on every grain; slack and taut; both rungs, by view – grain to rope from the side on AP46's tick, cut to grain from the window. RULED. §5 – The blink as the horse. DESCRIBING. §6 – One number per window: the numerical identity of the two readings is an IDENTIFICATION inherited from AP06 and AP24, with the hourglass reading of it supplied here; α^{21} over the grain, STRUCTURAL. AP01's Postulate G at the electron's scale returns the same gravitational object AP28 carries, read as a rate; IDENTITY, caged, because that object is the only dimensionless quantity the electron's constants admit. §7 – α is not a count. RULED, with AP45 §6's fence inherited. §8 – The neck's reading as a scope ruling on AP24 §5.4. RULED. §9 – Entropy: the door sentence given and the return leg answered by ruling, scoped out of every argument in the paper. DESCRIBING. §10 – Twelve routes closed, each with locus and reason; a thirteenth and a fourteenth named and left open, each with its cost stated – the running as Notebook V's and D-EM.1's, the ripple as its own paper's, its price attempted on 13 September 2026 and not paid, the miss published; the likeness of five closures stated as a fact about what was built and not as a theorem, with the stronger claim of an earlier draft withdrawn on the page; the second scale named and not supplied. REGISTER. §11 – The value refused; the chain of custody across three locked papers; the protocol filed, with its look-elsewhere denominator measured rather than asserted. REFUSED. §12 – KS-4 standing; KS-35 and KS-36 inherited; KS-ALPHA.1 ARMED; KS-ALPHA.2 registered as an obligation. §13 – Dated notes. No number changes anywhere in the work.

Conditionality Footer

Dependencies: as §0.2. Dependents: none yet; any future value paper stands on §10 and §11. Kill switches engaged: KS-35, KS-36 (inherited); KS-ALPHA.1 (ARMED); KS-ALPHA.2 (registered). Debts: D1 and D-EM.1 unchanged. Items held open: which boundary's η; three words for one object. Refused: §0.8.

What falls with what. §4 falls with the rung ruling and takes §2's two-things-α-is-not paragraph with it. §3 falls with KS-ALPHA.1. §6's third and fourth paragraphs fall with AP01's Postulate G or AP46 §5's tick, and take nothing else, being caged. §8 falls with the scope ruling and takes nothing else. §10's Road Nine falls if either pairing is withdrawn at its own paper. Road Fourteen's surviving claim is the cause and not the coefficients, its one new prediction having failed on 13 September 2026. It falls, and takes the frozen rows with it, only if the ripple is ever shown to be a cost the work has not already priced rather than the cause of one it has; on 12 September 2026 it was ruled the cause, and no row moves. The likeness of the five closures is a statement about the constructions as built. It does not claim that none of the five carried a coefficient near α – §10 concedes that the holder recursion carries one within a fifth – and it falls only if one of the five is shown to have carried a coefficient at α's value rather than near its order, or to have landed.

Provenance. Every claim, ruling and switch in this paper is mine. Drafting, independent verification and dress were carried out under his direction, every intermediate hashed, nothing locked unverified.

Appendix A – The Arithmetic of §10

Inputs: α = 1/137.035999177 (CODATA 2022); G = 6.67430(15) × 10^{-11}, relative 2.2 × 10^{-5}; the age 13.787 ± 0.020 Gyr (Planck 2018); the work's realised G = 6.6719 × 10^{-11} (–0.036%); the work's cycle 13.830 Gyr (+0.31%); the proton row 1836.152673445 against 1836.152673426(32), +0.59σ. Every figure below was recomputed from the formulas at a second desk, not carried across.

Road Three. α from the age: α = [(21/18)·τ_C/T]^(1/18), so δα/α = δT/(18T). Planck's 0.145% gives 80 ppm. The work's cycle sits 0.311% above the measured age, so α inferred from the measured age sits 0.311%/18 = 173 ppm above the measured α. The proton row: dD/dα = 21 in the leading term, so one sigma (32 × 10^{-9}) needs δα/α = 2.1 × 10^{-7}, 0.2 ppm. 80/0.2 = 400.

Road Four. α from G: the gravitational object goes as α^{21}, so δα/α = δG/(21G). CODATA's 22 ppm gives 1 ppm. The realised G sits 357 ppm below measured, so α inferred from measured G sits 357/21 = 17 ppm above the measured α. On CODATA's bar the G row is –15.9σ; the same 17 ppm in α's units.

Road Five. Eliminating α: G goes as T^(–21/18). Fed the measured age, q_T = α(1 + 173 ppm), and the returned G is 6.696 × 10^{-11}, +0.33% on measured; on the age's Planck bar (0.145% × 21/18 = 0.17%) that is 1.9σ; on KS-STRETCH.3's lane (±0.66 Gyr, 4.8%) it is 0.06σ. Fed measured G, q_G = α(1 + 17 ppm) and the returned age is 13.826 Gyr, +0.28% on measured, the age row unchanged.

Road Six. C(q) = 21q/(1 – 16q/1836); D(q) = 1836 + C(q) – q/4π; D(α) = 1836.152673445, +0.59σ. The series form 1836 + 21α(1 – 1/84π) + α^2·21·16/1836 = 1836.152673444.

Road Two. The event graph $K_{7,3}$ has adjacency spectral radius √21 = 4.583; the held graph $K_{6,3}$ has √18 = 4.243; reciprocals 0.218 and 0.236; the line-graph radii are m+n–2, so 8 and 7, reciprocals 0.125 and 0.143. None is near 0.0073.

Road Nine, the composition. Write the six faces as G, c, s, α, m_e, t. AP10 §5.1's axis pairing is the involution (G c)(s α)(m_e t). AP45 §6's balance pairing is (m_e G)(α c)(s t). Their composition is (G α t)(c m_e s): two three-cycles, not one six-cycle. Each closes, which is what the argument needs.

The withdrawn bound, and why it fails. For a polynomial with coefficients a_0 … a_n, every root satisfies |x| ≤ 1 + max|a_i|/|a_n| for i < n, and |x| ≥ |a_0|/(|a_0| + max|a_i|) for i > 0. Both bounds are of order one only when every coefficient is. The picture's coefficient list contains 1836, and with a_0 = 1 the lower edge is then 1/1837 = 5.44 × 10^{-4}, below α = 7.297 × 10^{-3}; with 84π it is 3.78 × 10^{-3}, still below. The annulus admits α and the bound excludes nothing. The bound excludes α whenever the largest coefficient is below 1/α – 1 = 136.04 – at 84 the edge is 1.18 × 10^{-2} and at 21 it is 4.5 × 10^{-2}, both above α. Of the picture's own numbers only 1836 and 84π defeat it, and the picture's list contains 1836.

The field, counted. Take as coefficients the picture's counts 1, 2, 3, 4, 6, 16, 18, 21, 84, 1836 and π, together with all their pairwise products and ratios – a pool of 135 values. Over quadratics alone, with either sign on the linear and constant terms, that pool yields 5,883

positive roots within one per cent of α, 35 within a hundred parts per million, and 2 within one. Normalising each quadratic by its leading coefficient and comparing exactly – every pool element carried as a rational times a power of pi, never as a float – collapses those to 3,763, 17 and 1 distinct equations. The pair inside one part per million is one quadratic and eight times it. A float comparison gives 3,765 in the widest band; the exact figure is the one printed, and the dedup rule is stated here so the count can be reproduced rather than trusted. Cubics and higher were not enumerated and would only enlarge the field. The closest single root sits 0.64 parts per million from α, outside the proton row's bar of 0.21 ppm; no root in the enumeration falls inside that bar. This is the measured look-elsewhere denominator of §11, and the reason a landing carries no information.

What the five closures do say. Ratios of two single counts: 16/1836 = 0.00871 5 is α × 1.194; 1/84π = 0.00378 9 is α × 0.519; 6/21 is α × 39. No such ratio is at α. The five roads as built used coefficients of exactly this kind, which is why each returned a size of order one rather than α's – a fact about those five constructions and not about the class.

The per-cycle ledger, checked. One window makes α^{-18} cuts per cycle at α-worth each, α^{-17} of possibility spent, against one grain shed per cycle. Setting α^{-17} equal to a structural number N gives α = N^(–1/17), which is 0.84 at N = 21 and 0.64 at N = 1836. For the root to be at α, N would have to be 2.1×10^{36}. No count in the picture is within thirty orders of magnitude of that, which is the whole of Road Twelve's closure and does not rest on the withdrawn bound.

§6. $\Delta E_G/\hbar$ with $\Delta E_G = Gm_e^2/\xi$ and $\xi = \hbar/m_e c$ gives $(Gm_e^2/\hbar c)(m_e c^2/\hbar)$ – the dimensionless gravitational object at one per Compton tick. Numerically the object is 1.752×10^{-45} on measured G, and the tick's reciprocal is 7.76×10^{20} per second. From G, m_e, $\hbar$ and c exactly one dimensionless quantity can be formed, which is why the agreement carries no information.

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