Updated Parallels: The Coordinate Ladder and Immanent Backreaction

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Abstract

This document records the post-Paper-8 revision of the 146 parallels framework after the addition of *Motion and Animation in Multiplication*. It preserves the post-label-risk tiering, adds a compact nucleus section identifying the stable core, and updates the count tables after the new entries. The guiding distinction is that fixed-integer motion and fixed-position chamber animation are not the same reading. The strongest safe conclusion is an arithmetic one: transport, support, multiplicity, boundary admission, projection, and Zusean animation are inseparable views of one lawful object, without claiming a physical theory.

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A Paper 8 Update: Motion, Animation, Zusean Coordinates, and Immanent Backreaction

A.1 Purpose of this appendix

This appendix revises the post-label-risk tiering after the addition of the eighth note, *Motion and Animation in Multiplication*. The revision does not replace the previous ranking of the 146 parallels. It sharpens it.

The earlier corrected tiering separated two questions:

> How strong is the arithmetic structure? How risky is the borrowed outside label?

This appendix keeps that rule. A physically dangerous word such as "backreaction", "field equation", "quantum gravity", or "relativity" does not by itself make a parallel weak. The question is whether the arithmetic object really plays a corresponding structural role.

The eighth note adds four important refinements:

1. motion and animation are different;
2. Euclidean, finite chamber, Cartesian, and Zusean coordinates form a coordinate ladder;
3. fixed-integer traces and fixed-position traces are different readings of the same support object;
4. the real-frame continuation gives a field-like product-rule separation

$$dW_y = A_y\,dR_y + R_y\,dA_y.$$

The main conclusion of this appendix is:

> The strongest honest post-paper-8 reading is not that the arithmetic chamber is a physical theory. It is that the chamber contains an immanent arithmetic analogue of field change and backreaction: transport, witness density, boundary admission, projection, and animation are not external additions to one another. They are inseparable readings of one lawful arithmetic object.

A.2 Tier key retained

We retain the revised post-label-risk tier key.

Tier	Meaning
1	Exact structural core. Directly follows from the arithmetic definitions or update laws.
2	Strong structural analogy. Not literally identical to the outside science, but the role mapping is clean and load-bearing.
3	Plausible interpretive analogy. Real structure is present, but the analogy needs careful framing or further formalization.
4	Speculative or poetic analogy. Useful as exploratory language, but not load-bearing.
5	Synthesis, slogan, or rhetorical compression. Valuable as framing, not as an independent structural claim.

When the structural status is exact but the outside label is risky, we write a mixed tier such as

$$1/2.$$

This means: Tier 1 as arithmetic, Tier 2 as analogy.

A.3 What Paper 8 adds

The support row is first a one-dimensional self-indexing object:

$$T(n,1), T(n,2), \ldots, T(n,n^2),$$

where

$$T(n,k) = 1 \quad \Longleftrightarrow \quad k = ab \text{ for some } 1 \le a, b \le n.$$

Euclidean division gives

$$k = qn + r, \qquad 0 \le r < n,$$

and therefore the Euclidean coordinate

$$E_n(k) = (q, r).$$

Arranging the same row as an $n \times n$ chamber gives finite chamber coordinates

$$F_n(k) = (u, v; n).$$

With $p = k - 1$, these are

$$u \equiv p \pmod{n}, \qquad v = n - 1 - \left\lfloor \frac{p}{n} \right\rfloor.$$

Equivalently,

$$k = (n - 1 - v)n + u + 1.$$

The finite chamber axes may then be extended to an ambient plane

$$Z_{\text{amb}} = \mathbb{Z}^2.$$

But the Zusean frame is not merely this Cartesian extension. It is revealed by comparing successive chambers under

$$n \mapsto n + 1.$$

Thus Paper 8 gives the coordinate ladder

$$\boxed{\text{division defines } E; \quad \text{display defines } F; \quad \text{extension defines } (x,y); \quad \text{animation reveals } Z.}$$

The crucial distinction is

$$\boxed{\text{motion follows } k; \qquad \text{animation compares chambers.}}$$

Motion is fixed-integer Euclidean transport:

$$k \longmapsto E_n(k) \longmapsto E_{n+1}(k).$$

Animation fixes a Zusean position

$$z = (\xi, \eta) \in Z_{\text{amb}}$$

and compares what occupies that position at successive levels. At level n,

$$k_n(z) = (n - 1 - \eta)n + \xi + 1,$$

while at level $n+1$,

$$k_{n+1}(z) = (n - \eta)(n + 1) + \xi + 1.$$

Thus the same Zusean position usually corresponds to different integer labels at different levels.

Define

$$U_n(z) = \begin{cases} T(n, k_n(z)), & 0 \le \xi, \eta < n, \\ 0, & \text{otherwise.} \end{cases}$$

Then the Zusean support delta is

$$\Delta_Z U_n(z) = U_{n+1}(z) - U_n(z).$$

When z lies inside both chambers,

$$\Delta_Z U_n(z) = T(n + 1, k_{n+1}(z)) - T(n, k_n(z)).$$

This is not the same question as the fixed-integer comparison

$$\Delta_k T_n = T(n + 1, k) - T(n, k).$$

The first fixes position and allows the integer label to change. The second fixes the integer and allows the coordinate to change.

A.4 Nucleus: the core after Paper 8

The nucleus is not the list of all parallels. It is the smaller structural core that can be carried forward without depending on borrowed physical language.

Core object	Role in the framework
Invariant integer	The same quantity can be followed through changing Euclidean frames.
Euclidean transport	Fixed-integer motion is governed by the coordinate change of $k = qn + r$ under $n \mapsto n + 1$.
Support	The visible chamber records which integers are admitted as products inside the finite multiplication box.
Multiplicity	The hidden witness structure records how many factor channels support a visible product.
Boundary admission	New witnesses enter exactly at factor-pair thresholds.
Projection	The chamber is not the whole object; it is a visible reading of support, multiplicity, coordinate choice, and finite framing.
Zusean animation	Fixed-position comparison reveals a second kind of change: not the motion of one integer, but the animation of the chamber under growth.

Thus the core can be stated as follows:

> The Euclidean chamber is the common site where invariant integers, frame-dependent coordinates, admitted witnesses, visible support, and fixed-position animation meet. Its strongest post-Paper-8 content is not a physical claim, but a precise arithmetic separation: fixed-number motion and fixed-position animation are different readings of the same lawful support object.

In compressed form:

$$\boxed{\text{motion follows } k; \quad \text{animation follows the chamber;} \quad \text{multiplicity records witnesses.}}$$

This is the nucleus that survives the label-risk filter. The outside parallels may help a reader orient themselves, but they are not the foundation. The foundation is the exact interaction between

$$E_n(k), \qquad F_n(k), \qquad U_n(z), \qquad A_y(k), \qquad R_y(k),$$

namely between Euclidean motion, chamber display, Zusean comparison, admitted multiplicity, and remainder transport.

A minimal closing sentence for the nucleus is:

> The chamber is not merely a picture of the multiplication table; it is the place where arithmetic becomes visible under a chosen frame, and where changing the frame separates motion from animation.

A.5 The continuation as an arithmetic field equation

Paper 8 continues the same separation to real frames $y > 0$. For fixed $k \geq 1$, write

$$k = Q_y(k)y + R_y(k),$$

where

$$Q_y(k) = \left\lfloor \frac{k}{y} \right\rfloor, \qquad R_y(k) = k - yQ_y(k), \qquad 0 \le R_y(k) < y.$$

Define the admitted multiplicity at real frame y by

$$A_y(k) = \#\{(a,b) : ab = k,\ \max(a,b) \le y\}.$$

Then $R_y(k)$ is piecewise linear between quotient thresholds, while $A_y(k)$ is a step function whose jumps occur at factor-admission boundaries.

For

$$W_y(k) = A_y(k)R_y(k),$$

the formal product-rule separation is

$$\boxed{dW_y = A_y\, dR_y + R_y\, dA_y.}$$

Here dA_y is supported at the admission boundaries

$$y = \max(a,b), \qquad ab = k.$$

This is the cleanest field-like formula currently present in the framework. It says:

$$\boxed{\begin{array}{c} \text{field change} \\ = \text{ transport of admitted witness-density} \\ + \text{ boundary admission of new witness-density.} \end{array}}$$

In words:

> The field equation is probably the strongest honest “unification-like” object at this stage: exact arithmetic transport coupled to discrete witness admission, but without claiming a physical theory.

A.6 Revising the backreaction reading

The earlier revised ranking treated “fixed background versus backreaction” as strong but incomplete: transport was fixed, while multiplicity rode on it. Paper 8 suggests a sharper reading.

There is still no separate external force that bends a pre-existing transport law. But that is not the right standard for this arithmetic setting. The arithmetic system has no outside intervention. Its geometry, support, multiplicity, boundary admission, and animation are not separate substances. They are coordinated readings of the same lawful object.

Thus the better distinction is:

Backreaction type	Present?	Meaning
Law-level GR-style backreaction	Not literally	Multiplicity does not externally rewrite the Euclidean transport rule.
Field-level arithmetic backreaction	Yes	$W = AR$ is changed both by coordinate motion and by witness admission.
Projected or visible backreaction	Yes	The visible chamber is shaped by support, multiplicity, boundary history, projection, and Zusean animation.
Immanent arithmetic backreaction	Yes	The reaction is not added from outside; it is built into how the arithmetic object becomes visible.

The phrase "no backreaction" is therefore too crude. A better sentence is:

> There is no external-law backreaction, but there is immanent arithmetic backreaction.

Or more sharply:

> Backreaction is not in the rule; it is in the seen.

The arithmetic matter distribution does not rewrite the rule from outside. It rewrites what the rule becomes visible as.

A.7 Selected old entries revised after Paper 8

The following table revises only the old entries most affected by Paper 8. Unlisted entries retain their previous revised post-label-risk ranking.

#	Entry	Previous revised tier	New tier	Reason after Paper 8
9	Caustics and lensing	2	2+	Rays, pillars, and apparent focusing can now be read as Zusean animation features rather than merely visual analogies. The label remains cautious, but the structural basis is stronger.
12	Renormalization-group analogy	2	2+	Base change already supplied scale-flow. Paper 8 adds the coordinate ladder $E, F, (x, y), Z$, making scale-dependent readings more explicit.
18	Motion of numbers as worldline theory	2	2	Kept, but narrowed: true motion follows fixed k. Chamber-to-chamber effects belong to animation, not fixed-number worldlines.

#	Entry	Previous revised tier	New tier	Reason after Paper 8
25	Variable speed of light	2	2/3	The frame-dependent maximum drift remains structurally real, but Paper 8 clarifies that some apparent motion is animation rather than fixed-k transport. The label risk remains very high.
28	Time dilation	2	2	Quotient-dependent drift remains strong. Paper 8 improves the distinction between fixed-number drift and apparent Zusean displacement.
29	Gravitational time dilation	3	2/3	Upgraded cautiously. Density-weighted motion $W = AR$ gives a candidate arithmetic object for density-dependent visible change, but not literal gravitational time dilation.
30	Relativity: invariant integer, frame-dependent coordinates	1	1	Still one of the cleanest exact parallels. Paper 8 strengthens it by adding several coordinate readings without losing the invariant integer.
31	Equivalence principle analogy	2	2+	Local quotient-constant regions give simple motion; thresholds and admissions give global structure. Paper 8 clarifies the local/global split.
32	GR versus quantum theory	2	2+	Strengthened. Euclidean transport supplies the geometry-like side; factor-pair admission supplies the discrete witness side; $dW = A\,dR + R\,dA$ supplies a field-like coupling.
33	Quantum gravity analogy	3	2/3	Upgraded but guarded. The geometry/witness/field grammar is stronger than before, but the physical label remains very high risk.
34	Fixed background versus backreaction	2	2+	Revised. There is no external GR-style backreaction, but there is immanent arithmetic backreaction in $W = AR$, in boundary admission, and in visible chamber morphology.
44	Quotient and remainder as conjugate-looking coordinates	2	2+	The continuation equation strengthens the sense that Q generates R-motion, while A weights the observed field. "Conjugate" remains careful language.
53	Decoherence	2	2+	The distinction between fixed-k motion and Zusean animation strengthens the idea that different readings erase different information.

#	Entry	Previous revised tier	New tier	Reason after Paper 8
54	Measurement problem	2	2+	Different readings now include Euclidean, chamber, Cartesian, and Zusean coordinates. The same object gives different observables depending on the reading.
57	Gauge choice	2	2+	Base and coordinate-frame choice are strengthened by the explicit ladder $E, F, (x, y), Z$.
58	Conservation laws	1	1	Kept. The formula $dW = A\,dR + R\,dA$ and the update $A_{n+1} = \Phi_n A_n + E_{n+1}$ reinforce transport-plus-source accounting.
60	Critical phenomena and percolation	2	2	Kept. Zusean deltas may provide better tools for studying visible phase-like morphology under frame growth.
75	Wave-function as distribution over hidden paths	2	2+	$A_y(k)$ is now naturally read as an admitted channel count under a moving cutoff. Phase remains absent.
81	Brownian motion analogy	2	2/3	Split. Random sampling from A remains Tier 2; apparent visual wandering in the chamber is Tier 3 unless a Zusean correspondence rule is fixed.
85	Path integrals	2	2+	$A_y(k)$ behaves like a cutoff-dependent sum over admitted factor channels. Still no phase, but the admitted-path grammar is stronger.
88	Random matrices / spectral statistics	2	2	Kept. Paper 8 suggests new data: Zusean deltas, persistence classes, and feature-correspondence statistics.
100	Morphogenesis	3	2/3	Upgraded cautiously. Feature persistence and transformation across frames are now native objects of study.
101	Growth rings	3	2/3	Upgraded cautiously. Boundary history and chamber animation make the growth-ring reading more structural.
114	Dynamical systems	1	1/2	Split. Fixed-k Euclidean motion is Tier 1; Zusean animation dynamics are Tier 2 because they require feature comparison.
116	Moiré patterns	2	2+	Strengthened. Some apparent structure comes from reading a self-indexing sequence through changing finite frames.

#	Entry	Previous revised tier	New tier	Reason after Paper 8
117	Cartography	3	2	Upgraded. Paper 8 explicitly separates Euclidean, chamber, Cartesian, and Zusean maps.
123	Arrow of time: reversible coordinates, irreversible growth	1	1	Kept. Paper 8 adds that animation gives another irreversible-looking frame-to-frame reading.
127	Chamber as fossil record	3	3	Kept but clarified. Fossil record concerns accumulated boundary history; animation concerns frame-to-frame comparison.
133	Genealogy of a cell	2	2+	Strengthened by the distinction between fixed-integer ancestry and fixed-position Zusean history.
134	Light cone / ancestry cone	3	2/3	Upgraded cautiously. Zusean position histories give a cleaner internal version, but light-cone language remains risky.
136	Initial condition versus rule	2	2+	Strengthened. The chamber's visible complexity can be generated lawfully by simple rules while still being computationally hard to anticipate globally.
140	Frustration	2	2+	Strengthened. Paper 8 makes the tension between fixed-integer motion and fixed-position animation explicit.
141	Dual citizenship of numbers	3	2	Upgraded. Integers now have clearer dual readings: invariant labels under motion and changing labels at fixed Zusean positions.
142	Virtual and actual numbers	2	2+	Strengthened by the real-frame admitted multiplicity $A_y(k)$, which records when witnesses become actual under the frame.
143	Boundary actualization	2	2+	Strengthened. dA_y is supported exactly at factor-admission boundaries.
144	Chamber as laboratory of emergence	5	5	Kept as synthesis, but now richer: the laboratory includes Zusean animation and the field-like continuation equation.
145	Arithmetic loom	5	5	Kept as synthesis. Paper 8 adds the Zusean frame as the moving loom's revealed coordinate system.

A.8 New parallels added after Paper 8

The following entries are added as #147–#174.

#	New entry	Tier	Label risk	Reason
147	Motion–animation split	1	Low	Exact distinction. Motion follows fixed k; animation compares successive chambers.
148	Zusean coordinates	2	Low/ Medium	Strong structural coordinate frame revealed dynamically by chamber comparison, not by a single still image.
149	Fixed-position trace	1	Low	Exact trace $z \mapsto k_n(z) \mapsto E_n(k_n(z))$.
150	Moving label / fixed position duality	1	Low	At a fixed Zusean position, the integer label changes from $k_n(z)$ to $k_{n+1}(z)$.
151	Zusean support delta	1	Low	Exact definition $\Delta_Z U_n(z) = U_{n+1}(z) - U_n(z)$.
152	Fixed-integer delta versus Zusean delta	1	Low	Exact distinction between $\Delta_k T_n$ and $\Delta_Z U_n(z)$.
153	Apparent feature velocity	2	Medium	Feature displacement in Zusean animation is meaningful once a correspondence rule Γ_n is chosen.
154	Feature correspondence problem	2/3	Medium	Real and important, but not determined by the support alone; it requires additional matching data.
155	Persistence as coordinate stability	2	Low/ Medium	A feature with small or zero Zusean displacement is stable in the animation frame.
156	Predictive continuation of features	3	Medium	Persistent Zusean delta classes may have predictive value, but this needs empirical or formal development.
157	Chamber cinematics	2	Low	The sequence $(C_n)_{n\geq 1}$ is a genuine discrete animation of the support.
158	Coordinate ecology	3	Low	The same object admits Euclidean, finite chamber, Cartesian, and Zusean readings. Useful as interpretation, not a separate mechanism.
159	Arithmetic field equation	1/2	Medium	$dW = A\,dR + R\,dA$ is exact as a formal product-rule/source split; “field equation” is the analogy.
160	Source term at admission boundary	1/2	Low/ Medium	dA_y is supported at $y = \max(a, b)$, $ab = k$. This is exact; source-language is analogical.
161	Cutoff-dependent witness density	2	Medium	$A_y(k)$ counts admitted factor channels below a moving frame cutoff.
162	Geometry–witness coupling	2	Medium/ High	$W = AR$ couples coordinate motion R with admitted witness density A.

#	New entry	Tier	Label risk	Reason
163	Immanent arithmetic backreaction	1/2	High	The visible field is internally co-determined by transport, witness admission, support, projection, and animation. The arithmetic structure is exact; the backreaction label is risky.
164	Projected or visible backreaction	2	High	The transport law is fixed, but what becomes visible is shaped by multiplicity, support, boundary history, and Zusean reading.
165	No external-law backreaction	1	Low	Exact limitation: no outside force rewrites the Euclidean transport rule.
166	Maximal internal atlas	2	Medium	Paper 8 coordinates several internal views at once: invariant integer, Euclidean coordinate, chamber coordinate, Cartesian extension, Zusean animation, and multiplicity.
167	Arithmetic god-view versus GR no-god-view	3	High	Interpretive contrast. GR lacks a privileged outside frame, while the finite arithmetic object permits a broad internal atlas. Useful but philosophically delicate.
168	Computational irreducibility of visible geometry	2/3	Medium	Even with deterministic rules, the chamber's visible morphology may be practically irreducible; this needs further formalization.
169	Backreaction in the seen	2	High	The reaction is not an extra rule acting on transport; it is the visible composite produced by transport, witnesses, support, projection, and animation.
170	Arithmetic matter distribution as visibility-shaper	2	Medium	Multiplicity does not externally rewrite the rule; it changes what the rule becomes visible as.
171	Non-Lagrangian chamber reading	2/3	High	Fixed-position animation is not particle-following. It is closer to watching a field/frame evolve. The borrowed physics language is risky.
172	Zusean rest	3	Medium	A persistent $\delta_Z = 0$ feature may be read as "at rest" in the Z-frame, but this requires a chosen feature correspondence.
173	Zusean inertia	3	Medium/ High	Persistent continuation of features suggests an inertia-like reading, but the term should remain exploratory.

#	New entry	Tier	Label risk	Reason
174	The chamber as common site	5	Low	Synthesis: the chamber is where fixed-number motion, boundary admission, visible support, hidden multiplicity, parity residue, projection, and Zusean animation meet.

A.9 Updated GR/QM cluster

Paper 8 most strongly affects the old GR/QM cluster. The revised reading is:

$$\boxed{\text{geometry/frame} + \text{discrete witnesses} + \text{field-like coupling} + \text{immanent visible backreaction.}}$$

The geometry-like side is Euclidean transport:

$$k \mapsto E_n(k).$$

The quantum-like side is discrete factor-pair admission:

$$A_y(k) = \#\{(a, b) : ab = k,\ \max(a, b) \leq y\}.$$

The field-like coupling is

$$W_y(k) = A_y(k)R_y(k).$$

The field-like balance law is

$$dW_y = A_y\, dR_y + R_y\, dA_y.$$

This gives the strongest safe GR/QM update:

> Euclidean transport supplies the geometry-like side. Factor-pair admission supplies the quantum-like side. The weighted observable $W = AR$ supplies a field-like coupling. What is still absent is literal physical gravity. What is present is immanent arithmetic backreaction: the visible chamber is not merely a passive display of transport, but the lawful composite of transport, witness admission, support, multiplicity, projection, and Zusean animation.

Thus the old entries are best read as follows:

Cluster	New tier	Updated reading
Relativity: invariant integer, frame-dependent coordinates	1	Exact and strengthened by the coordinate ladder.
GR versus quantum theory	2+	Geometry-like transport versus discrete witness admission, now joined by $W = AR$.
Quantum gravity analogy	2/3	Stronger than before, but still guarded because the physical label is very high risk.
Fixed background versus backreaction	2+	No external-law backreaction; yes to immanent visible arithmetic backreaction.
Arithmetic field equation	1/2	Exact product-rule/source split; field-equation language is analogical.
Computational irreducibility of visible geometry	2/3	Deterministic rules may still generate morphology that must be played out to be known.

A.10 Revised count estimate

The original revised table had

$$\#T_1 = 27, \qquad \#T_2 = 85, \qquad \#T_3 = 16, \qquad \#T_4 = 0, \qquad \#T_5 = 18.$$

The additions #147–#174 add 28 entries. Counting mixed tiers by their leading structural strength gives approximately:

$$\#T_1^{\text{add}} = 8, \qquad \#T_2^{\text{add}} = 14, \qquad \#T_3^{\text{add}} = 5, \qquad \#T_5^{\text{add}} = 1.$$

There are still no new Tier 4 entries, because the weakest new additions are not unsupported poetry; they are plausible interpretive extensions requiring careful language.

Thus, after Paper 8, the rough revised totals become:

$$\#T_1 \approx 35, \qquad \#T_2 \approx 99, \qquad \#T_3 \approx 21, \qquad \#T_4 = 0, \qquad \#T_5 \approx 19.$$

Equivalently,

$$\#(T_1 \cup T_2) \approx 134$$

out of

$$174$$

entries.

This count should not be read too rigidly, because several additions are explicitly mixed tiers such as 1/2 or 2/3. The more important conclusion is qualitative:

> Paper 8 does not make the framework more speculative. It makes the strong analogies more precise by separating motion from animation and by identifying the Zusean frame as the dynamically revealed chamber reading.

A.11 Recalculated total score tables

Mixed tiers are counted in two ways.

- **Possible rating:** a mixed tier i/j is counted as the stronger tier i.
- **Careful rating:** a mixed tier i/j is counted as the more cautious tier j.

Thus, for example,

$$1/2 \mapsto 1 \quad \text{in the possible rating,} \qquad 1/2 \mapsto 2 \quad \text{in the careful rating,}$$

and

$$2/3 \mapsto 2 \quad \text{in the possible rating,} \qquad 2/3 \mapsto 3 \quad \text{in the careful rating.}$$

The symbol + in entries such as 2+ is not counted as a separate tier. It records increased confidence inside the same tier.

A.11.1 Baseline

The revised post-label-risk table for the original 146 entries had the following counts:

$$T_1 = 27, \qquad T_2 = 85, \qquad T_3 = 16, \qquad T_4 = 0, \qquad T_5 = 18.$$

After Paper 8, several old entries are revised, and 28 new entries are added.

A.11.2 Effect on the original 146 entries

Under the **possible** rating, mixed revisions such as 2/3 are counted upward as Tier 2. This gives the following adjusted count for the original 146 entries:

$$T_1 = 27, \qquad T_2 = 92, \qquad T_3 = 9, \qquad T_4 = 0, \qquad T_5 = 18.$$

Under the **careful** rating, mixed revisions such as 2/3 are counted downward as Tier 3, and 1/2 is counted as Tier 2. This gives:

$$T_1 = 26, \qquad T_2 = 86, \qquad T_3 = 16, \qquad T_4 = 0, \qquad T_5 = 18.$$

A.11.3 Added Paper 8 entries

The 28 new Paper 8 entries, numbered 147–174, contribute the following counts.

Tier	Possible count	Careful count
Tier 1	9	6
Tier 2	13	13
Tier 3	5	8
Tier 4	0	0
Tier 5	1	1
Total	28	28

A.11.4 Final recalculated totals

Combining the revised original 146 entries with the 28 Paper 8 additions gives 174 total entries.

Tier	Meaning	Possible count	Careful count	Difference
Tier 1	Exact structural core	36	32	+4 possible
Tier 2	Strong structural analogy	105	99	+6 possible
Tier 3	Plausible interpretive analogy	14	24	+10 careful
Tier 4	Speculative / poetic analogy	0	0	–
Tier 5	Synthesis / slogan / compression	19	19	–
Total		174	174	

A.11.5 Percentages

Tier	Possible percentage	Careful percentage
Tier 1	20.7%	18.4%
Tier 2	60.3%	56.9%
Tier 3	8.0%	13.8%
Tier 4	0.0%	0.0%
Tier 5	10.9%	10.9%

Thus the combined Tier 1 and Tier 2 totals are:

$$T_1 + T_2 = 141 \qquad \text{possible rating,}$$

and

$$T_1 + T_2 = 131 \qquad \text{careful rating.}$$

As percentages:

$$\frac{141}{174} \approx 81.0\%, \qquad \frac{131}{174} \approx 75.3\%.$$

The combined Tier 1 through Tier 3 totals are the same under both counting conventions:

$$T_1 + T_2 + T_3 = 155.$$

Hence

$$\frac{155}{174} \approx 89.1\%.$$

A.11.6 Interpretation

The possible rating says:

> At least 81.0% of the 174 entries can be read as either exact structural core or strong structural analogy, if mixed entries are counted by their strongest defensible interpretation.

The careful rating says:

> Even under cautious counting, 75.3% of the 174 entries remain in Tier 1 or Tier 2.

Both readings give the same broader result:

> About 89.1% of the full post-Paper-8 list lies in Tiers 1–3. The list is therefore not dominated by unsupported metaphor. It is dominated by exact structure, strong structural analogy, and plausible interpretive analogy.

A.12 Sentences worth preserving

The following sentences are useful as compact formulations of the Paper 8 update.

> Arithmetic backreaction is immanent, not interventionist.

> Backreaction is not in the rule; it is in the seen.

> The arithmetic matter distribution does not rewrite the rule; it rewrites what the rule becomes visible as.

> There is no merely pre-existing visible geometry before multiplicity, support, boundary admission, and projection have jointly produced it.

> The field equation is probably the strongest honest unification-like object at this stage: exact arithmetic transport coupled to discrete witness admission, but without claiming a physical theory.

> Paper 8 may have reached the maximal internal atlas of this arithmetic universe.

> The Zusean view is not a god-view outside mathematics. It is the broadest presently defined internal atlas of the arithmetic object.

Motion follows the integer. Animation follows the chamber.

Euclidean transport gives fixed-number motion. Zusean comparison gives frame animation. The chamber is where the two are forced to meet.

The reaction is not something added to the system. It is the system playing out its own constraints.

A.13 Final revised framing

A safe final framing is:

> The Euclidean decomposition of multiplication is not proposed as a physical theory. It is an elementary arithmetic structure whose exact projections exhibit a rich observational grammar: hidden witness structure, visible support, exact transport, boundary admission, parity residue, compression, frame animation, and field-like source terms. Paper 8 sharpens this grammar by distinguishing fixed-integer motion from fixed-position animation and by introducing the Zusean frame. Under the revised post-label-risk lens, this supports a stronger reading of immanent arithmetic backreaction: not an external force bending a background, but the lawful visible consequence of transport, witness-density, boundary admission, support projection, and Zusean animation being inseparable views of the same object.

In the most compact form:

transport gives motion; boundary gives admission; multiplicity gives density; support gives visibility; projection gives observation; animation reveals Z.

And after Paper 8:

the chamber does not merely display arithmetic; it shows arithmetic reacting immanently to its own lawful growth.