

The Closed, Ascending Loop

*Working document v001, 2026-06-18. The A2 loop-closure synthesis. This document states the single engine running the full arc of the Mandala — number → space → matter → quantum change → and round one dimension higher — as **one process at every level**, and settles the two questions left open by the loop-closure handover (``handover_to_loop_closure_thread_v001``). Two author rulings are recorded: (1) the third imaginary rotation ($i^3 = -i$) validly **un-boosts**, which is what the weak force does; and (2) the dimension count of the base loop is **seven, not six** — the water→fire closure is not a flat return but a dimension-erecting inversion of air, the step in which a thing **becomes true**. The handover's candidate handedness reading is **rejected** on the authority of ``mandala_framework_v005` §7`. Scope: the base quadrant loop is Tier 1 (it yields physical law); the higher loops are rails for Iconism and Spirit, laid here but not developed.*

1. What this document settles

Three things were open coming into this thread; all three now close.

- **Handedness** — there is a real counter-rotation, and it is *not* the Mandala's clockwise-quadrants / anticlockwise-signs appearance (which ``mandala_framework_v005` §7` has already ruled a drawing artifact). The real counter-rotation is the causal duality between hypodox running

****outward**** and paradox running ****inward****. (§5.)

- ****The meta-level "photon"**** — confirmed as the force-free, no-carrier information transfer of the water→fire step; its base-loop instance is wave-function collapse, spin and entanglement, and by Leibniz's Law it is abstractly the **same** step at every turn, which is what licenses reading the higher-turn version as the same operation one level up. (§4, §7.)

- ****Dimension-per-turn**** — pinned down as a derivation, not an image: the three Euclidean dimensions plus the four imaginary rotations give seven, and the seventh is the spiral's rising axis. (§6.)

Two rulings underwrite the close:

- ****Ruling A (un-boost).**** $i^3 = -i$ validly removes the boost. It sounds strange only because we are habituated to treating reality as irreducibly real; it is exactly in keeping with Virtualism's **as-if** commitment that the correct mathematics performs hidden operations that look like magic. The weak force is that operation.
- ****Ruling B (seven dimensions).**** The water→fire closure erects a seventh dimension. It is the inversion of air — the subjective inner made objective outer — and abstractly it is **a thing becoming true**.

2. The single engine (referenced, not relitigated)

The thesis of the whole thread is that there is ****one process****, applied without exception from the carving of the first integer to whatever sits

at the top. The difficulty is never a new mechanism; it is only showing convincingly that it is this one.

- **Paradox drives strong emergence.** An incompatible over-determination that cannot be flattened forces a novel boost into a new dimension. The causation runs **downward and inward**; the rotation is imaginary and capped at 90°. This is what *erects* a dimension. Only paradox has the persuasive power to do so; probability cannot.
- **Hypodox drives weak emergence.** An under-determination permits configurational relaxation and choice, *populating* a dimension already open. The causation runs **upward and outward**; the growth is Euclidean — linear and unbounded.

Two terminological guards, carried from the consolidation pass and not to be undone here:

- Boost is **extrinsically triggered** (the positional over-constraint the rest of reality places on a thing will not tolerate the paradox) but **inwardly directed** (the inner gives way into an imaginary rotation — the 4D residing within the 3D). "Extrinsic" names the trigger; "inward" names the response. Do not collapse the two back into "boost is the extrinsic move."
- Boost is the **consequence** of over-determination, never an intrinsic property (per ``change_and_present` v2.0`, ``gravity_and_the_past` v1.3`).

3. The four breaks are the four powers of i

The spine of the loop is that the four elemental transitions are the four imaginary rotations, and the algebra of i is the bookkeeping. Each break is one multiplication by i ; four of them compose to a full turn.

| Break | i^n | value | force | relationship emerging | what the step does |

|---|---|---|---|---|---|

| Fire $\rightarrow$ Earth | i^1 | i | strong + gravity | objective difference / mass / boost | erects the imaginary (boost) dimension |

| Earth $\rightarrow$ Air | i^2 | -1 | electromagnetism | momentum / quantum change | subtract area * here * , add it * there * |

| Air $\rightarrow$ Water | i^3 | $-i$ | weak | loss / absence / un-boost | removes the boost, leaves a constrained void |

| Water $\rightarrow$ Fire | i^4 | $+1$ | force-free | whole-without-parts becoming fact | closes the loop ** and ** erects the seventh dimension |

The intermediate signs are not decoration; they are the conservation.

- $i^1 = i$. ** One inward rotation. The under-determined line of number, pressed against the non-determined void and over-determined by the sameness of all numbers (natural becoming rational), resolves into fully-determined Euclidean space — and then, where hyper-volume will not sit flat, the only resolution is the turn inward to the orthogonal: the boost. This gives objective difference, true for all alike — gravity and inertia, the space of relativity, but without time. Strong force and gravity.

- $i^2 = -1$. ** "The double-I gives a negative," and the minus does real work. It is * why * quantum change is subtract-here / add-there: the

sign-flip strips squareness off one object and deposits it on another.

Because these objects have no classical position, there is no literal

here and *there* — only a direct relation of change between them.

Philip the photon is this step; what it carries is momentum, and the

net effect is that everything gains momentum. Electromagnetism.

- **$i^3 = -i$.** The inverse of the first rotation. $-i$ undoes precisely

what i did — which is what "un-boost" means. A real object's inner

value is removed, leaving a void that is no longer determined by that

inner value but is still constrained by the real objects surrounding it.

This is loss of mass; the weak force fits it exactly. **(Ruling A.)**

- **$i^4 = +1$.** Home to the real axis. See §4.

A curio recorded for later, not banked: the four rotations not only

multiply to one ($i^4 = 1$) but *sum* to zero ($i + i^2 + i^3 + i^4 = i - 1 - i$

$+ 1 = 0$). Whether the vanishing sum states a real conservation across a

full turn, or is a pretty fact of the algebra, is left for the author's

eye. (Open item, §9.)

4. The closure that ascends: $i^4 = +1$ and the seventh dimension

The loop closes **because** four right-angles make a full circle. That is

the derivation of why the Mandala has four elements and not three or five:

you need exactly four imaginary rotations to come back onto the real axis.

But the return is not to the *same* point. $i^4 = 1$ settles the **phase** —

there is no net rotation owed, so the closing step is energetically *free*,

which is why the water→fire step can be force-free and informational. The ****+1****, which the author has insisted on throughout, is a ***displacement***: a step into a new, seventh dimension. The step is therefore ****closure and ascent at once**** — the loop comes home to fact, and the coming-home ***is*** the next dimension. The "+1" was pointing at the seventh dimension all along.

The content of the step is the ****inversion of air****. Air is the inner, subjective layer of an object — its internal structure, its probabilistic possibility (the "air-quadrant nature" any real object carries). Water→fire turns that inner subjective fact into an objective outer one: King William the Wave (possibility, the whole-without-parts) collapses into a logged, fully-determined fact. The subjective becomes objective; ****a thing becomes true****.

This is force-free for the same reason the entangled carrier of spin acts immediately: there is no energy to transfer, because there is no particle — only the ***as-if*** apparent existence of one. A quantum of transfer, an addition with no loss or gain (Leibniz's Law: subtract here, add there, no residue). It is the ****meta-level analogue of the photon**** — the no-carrier information transfer — and because by Leibniz's Law every water→fire step is abstractly the ***same*** operation, the higher-turn version (consciousness' "fourth I") is recognisably the same step as base-loop collapse. (Confirmed open item 2.)

****The seventh dimension's content, stated generally:**** any solitary thing becoming true fact, taking up its place in the eternal past of

fully-determined facts. ****In the base loop specifically:**** the physical universe becoming true *as the actual laws of nature*. The deposited fact *is* physical law. This squares with the Fire-modality ruling — Fire is fact-as-sameness, and a law is the sameness "all similar objects behave alike under like circumstances" (all electrons being the same $\Rightarrow$ all behave the same). Law is not a soft thing layered on; it is the seventh-dimensional fact the base loop deposits, fully determined, taking its place in the past.

5. Handedness: the real counter-rotation

The handover offered a candidate: that the author's counter-rotation is the Mandala's own clockwise-quadrants / anticlockwise-signs structure. ****This is rejected.**** ``mandala_framework_v005` §7` has already ruled that the sign/quadrant reversal is *not* a real counter-rotation — sign-elaboration runs the same structural direction as the quadrants, and the apparent reversal is "an artifact of how the leading edges of quadrants and signs align on the picture." A counter-rotation the framework has dissolved cannot be the one the engine carries.

The ****real**** counter-rotation is the causal duality of the engine itself, and the author's notes state it directly: numbers turn ****outward**** — Euclidean, linear, unlimited (weak emergence, hypodox, populating a dimension) — *or* ****inward**** — imaginary, rotational, capped at 90° (strong emergence, paradox, erecting a dimension). Within an element the flow is outward and upward, parts making more parts; between elements, where paradox strikes, the flow is inward and downward. That is the genuine

counter-rotation, and it is a property of the **process**, not of the **drawing**.

This also resolves the apparent order-flip the handover worried about (extrinsic-then-intrinsic at the base, intrinsic-then-extrinsic higher up) without appeal to the picture: it is the alternation of the two causal directions, not a contradiction.

6. The dimension count: seven, derived

The base loop reaches ****seven**** dimensions, and the count is a derivation rather than an image:

1. ****Three Euclidean dimensions**** furnished within the domain of number — line, area, volume — each a fully-determined resolution of number pressing outward against the void. All objectively true, all "yin," the flat world of perfect fact that supports true volumes but carries no mass.
2. ****Four imaginary rotations****, one per elemental break, each erecting one further dimension:
 - 4th — Fire→Earth (i^1): the boost dimension that supports mass.
 - 5th — Earth→Air (i^2): the dimension of quantum change / momentum.
 - 6th — Air→Water (i^3): the dimension of un-boost / constrained void.
 - 7th — Water→Fire (i^4): the inversion of air — a thing becoming true.

Three plus four is seven. The author's earlier count of six treated the

water→fire step as a flat closure that erected nothing; Ruling B corrects this — the closure erects the seventh dimension, the axis along which the spiral rises. Six would be a wheel; seven is a spiral.

A bird's-eye temporal reading runs alongside the elemental one and is recorded as a gloss, not a fresh claim: Fire past, Earth present, Air imminent future, Water distant future. The water→fire closure is then the distant future's possibility-space collapsing into settled past fact — the actualisation step — which is consistent with `change\_and\_present` and `gravity\_and\_the\_past` and is why the deposited fact belongs to the "eternal past of fully-determined facts."

7. The higher loops are fractal (scope boundary)

Past the seven base dimensions, expansion does ****not**** continue as further quadrant-breaks. It proceeds by the **wholes that exist within a sector** spawning their own loops — running the same relational order (fire → earth → air → water) over the richer substrate of that sector, and diverging into new kinds of object at every level and every change within a level. The base quadrant loop is run once and yields physical law; the higher loops are recursive applications of the identical engine on what the loop below deposited.

This is the ascending spiral made fractal, and it is exactly where the tiers part company:

- **The base loop is Tier 1.** Number → physical law. Built here, in full.
- **The higher loops are Iconism and Spirit.** Consciousness, shared awareness, the content of specific moral or ethical facts — these are the **facts of inner change** becoming raw material for the next turn, the self-becoming-true repeated at a higher substrate. The **rails** are laid here (the engine, the spiral, the seventh-dimension closure that any solitary thing's becoming-true instantiates); the **development** is not. No Iconism or Spirit content is smuggled into Tier 1 by the back door.

The author notes that listing every higher category is likely impossible, since each higher sector diverges into new objects at every level — but the decision table below may let a start be made.

8. The decision table

The generator (2×2, keyed on trigger and locus). This fixes everything downstream. The diagonal is the established engine; the two off-diagonal cells are genuine gaps, not oversights.

| | within an element | between elements (a break) |

|---|---|---|

| **hypodox** (under-determined) | outward · linear · unlimited · weak · **populates** | **OPEN**
— does hypodox reverse the elemental order, or only the direction? |

| **paradox** (over-determined) | **OPEN** — is there a within-element paradox at all? | inward · rotational · 90° cap · strong · **i** · **erects** |

****The base loop (the four breaks instantiated).****

| Break | i^n | value | force | relationship emerging | what the step does |

| --- | --- | --- | --- | --- | --- |

| Fire → Earth | i^1 | i^* | strong + gravity | objective difference / mass / boost | erects the imaginary dimension |

| Earth → Air | i^2 | -1 | electromagnetism | momentum / quantum change | subtract area here, add it there |

| Air → Water | i^3 | $-i^*$ | weak | loss / absence / un-boost | removes the boost, leaves a constrained void |

| Water → Fire | i^4 | $+1$ | force-free | whole-without-parts becoming fact | logs a fact, erects the 7th dimension, closes the loop one turn up |

Between each break, the same sector hosts within-element hypodox doing the outward, linear populating — the "little eddies" of the author's earlier notes. These are kept off the spine so the four-rotation backbone stays visible.

9. What remains open

- **The two off-diagonal generator cells.**** (a) Does hypodox, striking within a break, **reverse the elemental order** (fire → water → air → earth) or merely reverse direction (outward instead of inward)? A consideration against full reversal: if the four breaks are the i^* rotations and they are what fixes the clockwise order, hypodox — which erects no dimension, only populates — has no rotation to reverse, which argues for "outward, same order." Flagged, not ruled. (b) Is there a

genuine **within-element paradox** at all, or is the within-element cell simply empty?

2. ***The vanishing sum.*** $i + i^2 + i^3 + i^4 = 0$ alongside $i^4 = 1$ — a real conservation statement across a full turn, or an algebraic coincidence?

3. ***The within-Fire derivation*** of line $\rightarrow$ area $\rightarrow$ volume from under-determined $\rightarrow$ non-determined $\rightarrow$ over-determined $\rightarrow$ fully-determined is housed in *`numerogenesis`* and referenced here, not re-derived.

10. Status and next steps

The spine is complete and the two governing rulings are in. The base loop is instantiated in full; the higher loops have their rails and their hand-off to Iconism and Spirit marked. When the author is satisfied, this synthesis is firm enough to feed the command project — a *`theory\_current\_state`* update and a working-project report per *`working\_project\_update\_instructions\_v001`*. The decisions log should record Ruling A (un-boost valid), Ruling B (seven dimensions), and the rejection of the handover's handedness candidate against *`mandala\_framework\_v005`* §7.