

Foundations: Relationships, Facts, Dimensions

Working document, Virtualism Theory project. The foundational thread — the ground on which paradox_and_emergence and every subsequent thread rests. Establishes nodes, relationships, virtual wholes, facts, dimensions, reducibility, and the categorial distinctions (true / factual / real / ideal) that the rest of the theory depends on. Source citations are by diary number; the underlying extracts live in the diary files in this project.

0. Why this document exists

A first attempt at the paradox-and-emergence thread led with paradox. That order turned out to be wrong. Paradox is a discrepancy between the internal and external truth-values of a subject — but before any of that can do work, we need an account of what subjects are, what internal and external truth-values are, what **truth-values of a relationship** even amount to, and why such things exist in the first place. The diary's 28 April 2025 entry says it plainly: *"before we even get to paradox, which is needed to explain emergence, we first need to define the nature of properties."* (Diary 064A.)

This document sets out those foundations. It is deliberately structural rather than narrative. Its job is to establish the apparatus that the rest of Virtualism Tier 1 uses. It is also the place where Virtualism's basic categorial vocabulary — **true**, **factual**, **real**, **ideal**, **virtual**, **whole**, **part** — is defined and held fixed.

The remainder of Tier 1 (paradox_and_emergence, nothingness_and_

beginning, numerogenesis, time, gravity_and_space, core_ontology)
inherits from this document. Where another thread depends on a
foundation, it cites by section number here rather than re-deriving.

1. Nodes and the minimum case

A **node** is a whole thing, even when that thing is also part of some
other whole thing. (Diary 042, 15 October 2020 — the "Systematic
Statement.") Wholeness is the defining property of a node; without
wholeness there is no node, only undifferentiated stuff.

A **relationship** requires at least two nodes. A single node, taken on
its own, just *is* its own identity — Leibniz's Law applied to itself.
There is nothing to relate. So a single node, considered in isolation,
gives us only the law that a thing is identical with itself. Useful, but
not yet productive. The minimum productive case is two nodes.

This is more interesting than it sounds. The very first existent in
Virtualism's account — unity — is the paradoxical realisation that
"nothing at all" is itself whole, and so is paradoxically also a
something. (See [nothingness_and_beginning.md](#) for the full development.)
That first whole, by being whole, already contains the seed of the
two-node case: it is one thing and it is also the relationship between
itself and not-itself. As Diary 053A (24 March, **Start**) puts it: "the
universe starts with an Everything that has wholeness, and one
dimension that goes straight to its heart, it is both unity, being
whole, and zero, being nothing. Both paradoxical and dual, it is in
fact, in truth, two."

So the minimum case is not historically separable from the first

existent. They arrive together. But for purposes of laying down the apparatus, we can treat the two-node case as the structural minimum and develop from there.

Three logic values

Between any two nodes A and B there are, structurally, three available logical situations (Diary 063A, 16 January 2025):

- **Identity.** A and B are indiscernible — every property that applies to A applies to B in the same way. By Leibniz's Law, this means A *is* B, not "A and B are very similar." If two things share every property, they are not two things.
- **Difference.** A and B share a dimension along which they can be distinguished. There is *at least one* common dimension along which a measure of difference exists. This is the situation that makes relationships possible: there is enough sameness to put A and B in the same frame, and enough difference to keep them apart.
- **Complete difference.** A and B share no dimension along which difference could be measured. They are entirely alien — there is no frame in which they both appear. Strictly, they have no relationship at all, except the very minimal one of both being.

A fourth scenario is worth noting: A and B are externally identical but internally different. The diary flags this as the place where partial sameness lives — most real-world cases are of this kind. Atoms of a kind, for instance, are identical in many features but distinguished by position (Diary 064A, 30 April). Two electrons share their electron-ness completely; they are distinguished only by where they are.

The interesting case for almost everything that follows is Difference — including the partial-sameness variant. Identity collapses two things to one; complete difference makes them mutually invisible; partial sameness with measurable difference is the only case where there is something for a relationship to do.

2. The relationship as virtual whole

When two nodes stand in a relationship of difference, something exists that did not exist when there was only one node: the relationship itself. This is not a metaphor or a way of speaking. The relationship is an existent. (Diary 064A, 30 April 2025: *"A relationship is a virtual connection that necessarily exists between any two objects of any kind, simply by virtue of their being combined by any number of similar properties, but separated by dissimilar properties."*)

Three properties of this third thing matter:

1. ***It is unavoidable.*** Given two nodes with sameness-and-difference, the relationship between them exists necessarily. No one has to act to create it; no observer has to notice it. It is a consequence of the nodes' having any sameness at all — Leibniz's Law applies to the indiscernible feature, and the relationship is what that application amounts to. (Diary 064A, 28 April.)
2. ***It is virtual.*** The relationship has no parts of its own that are made of the kind of stuff the nodes are made of. It is not a third object you could in principle find sitting between A and B. It is a **truth about** A and B taken together — the truth of their

partial sameness combined with the truth of their partial difference. (Diary 049: *"every virtual 'as if' fact is a fact of similarity."*)

3. *"It is whole."* The relationship is a thing in its own right. It has a single identity. It is "the relationship between A and B," not a list of correlated facts. This wholeness is what gives the relationship its standing as a **node** itself, available to enter into further relationships.

This is the engine of the whole apparatus. Two nodes plus a relevant sameness-and-difference produce a **new whole**, virtual in character, which is then itself available as a node for further relationships. The levels stack: pairs of relationships have their own relationships; collections of relationships form structures; structures relate to other structures. Everything that follows in Virtualism is built out of this stacking.

The midpoint / virtual heart

A particular case of the relationship-as-whole, frequently invoked in the diaries (Diary 053A, 7 July 2023; Diary 049 on centres of gravity), is the ***midpoint*** or ***virtual heart*** of a relationship. Every relationship between two nodes has, structurally, a midpoint between them along the dimension of their difference. That midpoint is not nothing; it is the virtual whole that the relationship is. The centre of gravity of the Earth is a worked example: it is somewhere very specific, it has measurable causal effect on the motion of solar systems, and yet if you went there you would find no particle. It is the virtual heart of the Earth-considered-as-whole.

The midpoint scales. Any collection of nodes can be reduced to a smaller collection of pairwise midpoints, and those in turn to fewer midpoints, until eventually one midpoint anchors the whole as its virtual heart. The Earth's centre of gravity is what you get when you do this for every particle in the Earth. The diaries take this scaling up to the limit: *"In all possible universes, and therefore in the Universe in which we live, there is just such a real virtual heart."* (Diary 053A.) The universe has its own virtual centre — develop in `gravity_and_space.md`.

3. Facts are relationships

A *fact* is a relationship considered as an existent. (Diary 062A, 7 November 2025: *"a property is a fact about some object, i.e. a relationship to another object."*) This is one of Virtualism's distinctive moves. Facts are not propositions about the world; they are not assertions; they are not what truth-makers make. They are the relationships themselves, which exist whether or not anyone says anything about them.

A property is a particular kind of fact: a relationship that one of the nodes "has" because of its sameness with some other node. To say "the ball is red" is, on this account, to say that the ball stands in a relationship-of-redness with every other red thing, and that relationship is a virtual whole that exists. Redness, as a virtual whole, is what every red thing partakes of. (Compare Diary 049: "if some four-sided object has the virtual truth of four-ness applicable to it, that fact connects it in a virtual manner to every other thing that has a property of four-ness.")

This identification — facts as relationships — has three consequences that propagate through the rest of the theory:

Truth-makers are not truth

Standard truth-maker theory holds that propositions are made true by states of affairs in the world. Virtualism agrees that there are truth-makers in *some* sense (the facts that ground the relationships that ground the propositions), but it inverts the priority: truth is not what propositions have when they correspond to states of affairs; truth is what relationships of sameness *are*. (Diary 60B, 2 May 2025: *"truth-makers in isolation are not truth ... a thing is true when it embodies, among whatever else it embodies, the virtual object Truth, irrespective of truth-makers."*)

This sounds technical but does real work. It means truth is not a property of utterances or beliefs; it is a feature of the world's own relational structure. Utterances and beliefs are *about* truth; they are not what truth is. This is the apparatus that lets Virtualism reply to dialetheism (next subsection) and lets us locate the Liar paradox correctly as something other than a fact (§7).

Facts do not change

Once a relationship exists, it does not stop existing. The nodes that participated in it may change; the relationship of those particular nodes at that particular moment is fixed and remains. This is what the diaries mean by *"facts do not demerge, never get recycled, they just are, once they emerge that's it, they are here forever"* (Diary 54B, 19 December 2023).

This is also the foundation of the time material (see time.md). The past is the totality of facts that have ever emerged. It is true but no longer real. This will be developed there; here we note only that the non-demergence of facts is a foundational commitment, not a derived consequence.

Facts can be more than their nodes

A fact about two nodes can have properties that neither node has. Two red things partake of redness; the redness is a virtual whole that constrains how each of them stands in further relationships. This is the seed of strong emergence — which gets its full treatment in paradox_and_emergence.md, but the foundation is here. The relationship is not reducible to the nodes, because it is the virtual whole that they jointly partake of, and that whole has its own existence.

4. Relationships as dimensions

A relationship between two nodes is not just a fact about them — it is also a *direction* along which they differ, and a *measure* of how far apart they are along that direction. (Diary 063A, 16 January: *"there is some measure where a gap exists between A and B, therefore A is not B ... there is at least one common dimension along which a relationship of difference exists between A and B."*)

This is the basis of the move from relationships to dimensions. Every relationship of difference is, structurally, a one-dimensional axis on which the two nodes occupy distinct positions. Add a third node that differs from both along an *independent* axis, and you have a two-dimensional structure. Add nodes whose differences are independent

again, and dimensions accumulate.

Two consequences:

Dimensions are emergent, not pre-given

Dimensions are not a backdrop in which nodes happen to sit. They are produced by the differences between nodes. (Diary 064A, 30 April: position is "a fact that emerges from the numerical differences between objects.") Before there is a relationship of difference, there is no dimension to occupy. After there is a relationship of difference, there is.

This will be the foundation of the gravity_and_space treatment (space itself is the emergent dimension produced by mass-energy differences) and of the time treatment (time is the emergent dimension produced by parallel changes). For now, hold the principle: dimensions are consequences of relationships, not the other way around.

A new dimension is a new kind of difference

If a new relationship arises that involves a kind of difference that none of the existing dimensions can accommodate — that is, if the new difference is independent of all the differences already present — then a new dimension must emerge to host it. This is the bridge from the foundations apparatus to the paradox-and-emergence apparatus: strong emergence is the production of just such a new dimension under the pressure of unpreventable paradox. But the substrate is already here. A dimension is what a kind of difference looks like when considered as a frame.

5. Leibniz's Law as the law of virtual connection

The Identity of Indiscernibles — Leibniz's Law in its strong form — is foundational, not auxiliary. (Diary 049: *"Leibniz's Law ... as a law of virtual connection."*) Its standard statement is: if two things share every property, they are not two things but one. Virtualism reads it slightly differently, and gets more out of it.

The Virtualist reading: Leibniz's Law applies to *features*, not just to objects in their entirety. Two objects may differ in many features but be indiscernible in one. Where they are indiscernible, that one feature is — by the Law — the same feature, not two similar features. (Diary 064A, 30 April: *"two or more objects of any kind must be identical only in respect to the manner in which they are indiscernible."*)

This is what makes the virtual whole real. The "redness" that two red balls share is not "the redness of ball A and also the redness of ball B, which happen to be alike." It is one redness, instantiated in both places, and it exists as a virtual whole because the Law forces the identification.

This has consequences:

All instances of an indiscernible feature are the same instance

Every electric charge is, by this reading, the same electric charge. (Diary 062A, 7 November Addendum.) Every instance of the number two is the same two. Every photon-as-photon is the same photon-as-photon; what distinguishes one photon from another is something other than its

photon-ness — its location, its frequency, its history. The features that are indiscernible are one feature; the features that are discernible are how we tell instantiations apart.

This is unfamiliar but coherent. The trick is to keep the level clear: "this photon" and "that photon" are distinguishable as instantiations, but "photon" is a single virtual whole that they both partake of.

Leibniz is the structure behind Morphic Resonance

The diary notes (Diary 60B, 30 May 2025; Diary 059A, 16 February 2025) that Sheldrake's Morphic Resonance is, on a Virtualist reading, "just Leibniz's Law and a case of 'boys will be boys.'" Things that share a virtual whole behave according to whatever that whole's facts allow. The interesting reframing is that Sheldrake's holons-undifferentiated are replaced by Virtualism's specific relationship-types (see §6). Sheldrake noticed something real; the apparatus he proposed for it is less precise than what Leibniz already supplies.

Leibniz, not Cantor

The diaries also note (Diary 055A, 15 January; and the held-back material throughout) that "Leibniz trumps Cantor" — parts are necessarily less than wholes, or else they would be wholes. The Cantor-specific argument is held back from public presentation per project policy. The Leibniz-as-foundational position stands on its own.

6. Everything reduces to virtual facts

A consequence of §§1–5 is that there is only one kind of stuff at the bottom of the ontology: virtual facts (relationships of sameness-and-difference between nodes). Everything else is layered on top.

This is the position the diaries return to repeatedly, most cleanly in Diary 053B (the *"What then is there?"* Q&A): *"Only relationships, and these are virtual, but also paradoxical, which creates an unending production line of numbers. Each is whole, and maps onto every other number."* It is also the position underwriting Diary 058 (18 May 2025): *"the whole of Existence, meaning Heaven and Earth, meaning the Universe and Meinong's Zoo, is just a bag of numbers, but those numbers allow, I should say force, emergent objects to exist."*

There is no "physical matter" sitting underneath the virtual facts as their bedrock. There is no "Platonic realm" of ideal objects existing separately from the physical. There is no Cartesian "mental substance" distinct from the body. There are virtual facts, all the way down, and the categorial distinctions we *do* draw between physical, ideal, and mental are distinctions among kinds of virtual fact (next section, §7).

This is the strong reductive claim of Virtualism, and it must not be confused with physicalist reduction. The reduction is to virtual facts, which are immaterial, ideal in form, and yet productive of everything including the material. Physicalism reduces to material; Virtualism reduces to relational fact.

The Mandala apparatus (in brief)

The diaries develop the relationship-type taxonomy under several names — the four-relationship-types, the four elements, the Mandala or Alethiogram or Zodiac. (Diary 055A, 24 March; Diary 042, 21 February;

Diary 046, 28 October 2021.) The schema in compact form:

- **One-to-one** (fire / sameness): overlapping Venn diagrams; the intersection is the shared truth; one occurrence shared by all objects that include it.
- **Many-to-many** (earth / difference): null-intersection Venn diagrams; the relationship arises *because of* the difference, and *is* that difference.
- **Whole-to-part** (air / iconic): the relationship between a whole and one of its parts; the basis of the icon/world apparatus in Iconism.
- A fourth relationship-type — the relationship between subjects and feelings/possibilities, water — completes the schema.

The Mandala is the inventory of relationship-types and the basis for the cleanest version of the strong/weak emergence distinction (crossing a relationship-type boundary versus staying within one). It will get its own working document. Here we register only that the foundational claim — everything reduces to virtual facts — is compatible with there being kinds of virtual fact, and that those kinds are themselves load-bearing.

7. The categorial distinctions: true, factual, real, ideal

Standard metaphysics works with a few coarse distinctions: things are real or not, physical or mental, true or false. Virtualism needs finer categories, because the work it is doing requires distinguishing between several different *ways of being*. (Diary 54B, 25 December 2023: the "Veratology / Realology / Iconology / Ipsiology" labelling, explicitly framed as a response to "a brief non-reading of Quine.")

The categorial distinctions, as Virtualism uses them:

True

That which embodies the virtual whole of Truth. A relationship is true when it is what it is — i.e., when the partial sameness that grounds it is genuinely there. Truth is identity-with-sameness; it is what Leibniz's Law identifies. (Diary 054A, 13 November 2023: *"identity is truth."*) Truth is fire, in the Mandala apparatus.

Truths are not propositions. The proposition "the ball is red" is either true or not depending on whether the relevant virtual whole exists. The truth itself is the virtual whole.

Factual

A fact is a relationship considered as an existent. Every fact is true (by §3); not every truth is a fact in the narrow sense, because some truths are about other truths rather than about discernible objects. But in practice, in the diaries, **true** and **factual** are used almost interchangeably, with **fact** being the slightly more concrete term — the truth-as-existent rather than truth in the abstract. Facts are eternal; they do not demerge (§3).

Real

Real things are facts that have **difference** as a constitutive component, and therefore are subject to time and change. (Diary 049: *"to be real is to be composed of a certain kind of relationship that, while still being virtual, incorporates difference."* Diary 053A:

"Real objects are those that have spatial dimensions [position]."

This is the cleanest single sentence in the categorial scheme: **real is true-plus-difference**. Once differences are constitutive, the thing that is real becomes subject to the consequences of difference — position, change, mass, time. Real things are facts that have entered the regime of difference.

The implication: numbers and ideal objects are *true* but not *real*. The past is true but not real. Only Now is real, because only Now is the current state of the difference-regime. (Develop in time.md.)

Ideal

Ideal objects are facts that are pure same-ness, with no difference component: numbers, laws of nature, Euclidean geometry. They are true but not real. They participate in nothing's becoming anything else because they are not subject to the difference-regime. (Diary 055B, 24 February 2024: *"Numbers are the most ideal of ideals."*)

This is where the Virtualist account of mathematics lives. Mathematics is the study of truth-relationships among ideal objects. It is not a human construct (in the radical sense), nor a description of the physical world (in the deflationary sense); it is the structure of sameness-relationships among the most foundational virtual facts.

Virtual

Virtual is the umbrella term. All facts are virtual — they are relationships between nodes, not stuff. Real things are virtual in this sense (they are facts that include difference); ideal things are

virtual in this sense (they are facts of pure sameness); mental and iconic things are virtual in this sense (they are facts of whole-to-part relationship). The word *virtual* picks out the substrate character of all of these, against the misleading folk-distinction between "real things" and "abstractions."

The Cartesian / Quinean reframe

Quine's "On What There Is" asks: what is the ontology to which our theories commit us? Virtualism's answer differs in form from any of the standard answers (nominalism, Platonism, mereological reductionism) because it changes what counts as a basic existent. The basics are not particulars, not universals, not sets, not properties-in-the-trope-theoretic-sense: they are *relationships*. And the categorial distinctions are *kinds of relationship*, not kinds of substance.

The diary's "Veratology / Realology / Iconology / Ipsiology" framing (Diary 54B) corresponds roughly to: study of truths, study of realities, study of icons (mental contents), study of selves. Each is a study of a kind of fact, organised by the element it belongs to (fire / earth / air / water).

Where this connects to mainstream metaphysics

Several mainstream positions partly overlap Virtualism's foundations. None of them is identical; all are partial. Noted briefly here for later working-out in dedicated engagement documents:

- **Russell's logical atomism** treats the world as facts (Russellian facts), but his facts are arrangements of particulars and universals, where Virtualism's facts are virtual wholes. The

Russellian framework can be read as a special case of Virtualism's, with the relationships restricted to logical structure.

- **Whitehead's process metaphysics** treats occasions as basic and has continuity emerge from succession. Diary 043 acknowledges this as "halfway there" — Whitehead saw the impossibility of continuity but did not explain why occasions are different from points or why one occasion relates to the next. Virtualism's relationship apparatus supplies the missing structural account.
- **Quine's "On What There Is"** insists on existence-by-quantification and offers Platonism, conceptualism, and nominalism as the options. Virtualism is closest to a form of structural realism — what exists is the structure of relationships — but with the twist that the structure includes the categorial differentiation that produces reality from mere truth. The diary's Veratology / Realology / Iconology / Ipsiology is a deliberate response to Quine's framing. (Worth a dedicated engagement document; flagged for Academia.)
- **Tropes and trope theory** posit particular property-instances as the basic existents. Virtualism's "particular instance of redness" language has a trope-like ring, but Virtualism unifies all instances of a virtual whole under Leibniz's Law — they are not separate tropes but one whole instantiated in many places.
- **Eldridge-Smith's paradox/hypodox duality** (paradoxes as incompatibly overdetermined, hypodoxes as underdetermined, with many paradoxes admitting dual hypodoxes — see Eldridge-Smith 2007, 2019, 2022, 2023, 2024, 2025) gives a clean apparatus for the position on paradox developed in the next thread document. Virtualism's account of paradox-as-internal/external-discrepancy

maps to overdetermination; the gap-and-freedom material in the diaries (Diary 058, Diary 060B) maps to underdetermination. The dual structure is constructive for Virtualism and is taken up in `paradox_and_emergence.md`.

- **Structural realism** (Ladyman, French) treats the basic existents as relations rather than relata. Virtualism is sympathetic but goes further: it specifies what kind of relations and how new relata emerge from them.

These engagements are not yet developed. They are noted here as landmarks for later mapping; the foundations themselves stand on the diary's own grounds.

8. The minimum apparatus, in summary

Stripped to bullets, the foundations are:

- A **node** is a whole thing.
- A **relationship** requires at least two nodes with partial sameness and partial difference.
- A **virtual whole** is what such a relationship is. It exists necessarily, by Leibniz's Law.
- A **fact** is a virtual whole considered as an existent.
- **Truth** is what a virtual whole of sameness *is*.
- A **dimension** is what a relationship of difference is, considered as a frame.
- **Real** is true-plus-difference: facts that include differences as constitutive and are therefore subject to time and change.
- **Ideal** is true-without-difference: facts that are pure sameness.

- Everything reduces to virtual facts.
- Leibniz's Law (Identity of Indiscernibles, applied to features) is the law of virtual connection.

From here the paradox-and-emergence thread can proceed: paradox as a specific kind of structural situation in this ontology, emergence as what paradox produces.

9. What this document does not do

To keep the foundations from doing the work of every later thread, several topics are deliberately deferred:

- **Nothingness and the bootstrap.** Why there is anything rather than nothing, and how the first existent (unity) arises. Goes to `nothingness_and_beginning.md`. The foundations document assumes there is at least one existent and develops from there; `nothingness_and_beginning` earns that assumption.
- **The number sequence.** How natural numbers, squares, geometry, etc. emerge from the basic apparatus. Goes to `numerogenesis.md`.
- **Time.** The waterfall / glacier of facts; only Now is real; past is true but not real; future is structured possibility. Goes to `time.md`.
- **Gravity and space.** Space as an emergent dimension of mass-energy difference; gravity as the boost-driven response to internal/external paradox. Goes to `gravity_and_space.md`.

- **Paradox and emergence.** The mechanism by which new dimensions are forced into being, including the hypodox dual. Goes to `paradox_and_emergence.md`, which leans most heavily on this document.
- **The full Mandala / Alethiogram.** The four-element and twelve-alchemy apparatus. Probably wants its own document; the foundations document uses the four-element vocabulary lightly without depending on the full apparatus.
- **Iconism (consciousness) and Spirit (death/soul/astrology).** Tier 2 and Tier 3. The foundations are used by them but they are not developed here.

10. Status and open questions

Status

The foundations as set out here are stable across the diary material from at least Diary 042 (October 2020) through Diary 064A (April 2025). Refinements have been steady rather than disruptive: the basic apparatus (nodes, virtual relationships, Leibniz as law of virtual connection, the categorial distinctions) is present in close to its mature form by the end of 2020, and what later diaries do is sharpen the formulation and work out more consequences.

The document is firm enough for a summary to be lifted into `command's`theory_current_state.md``. A reasonable summary paragraph:

- > **Virtualism's** foundational claim is that all things reduce to virtual
- > facts — relationships of sameness-and-difference between nodes.

- > Every two-node relationship of partial sameness and partial
- > difference produces a virtual whole, which exists necessarily by
- > Leibniz's Law applied to indiscernible features. These virtual wholes
- > are facts; relationships of difference are dimensions; everything
- > else is layered on top. The categorial distinctions — true, factual,
- > real, ideal, virtual — are kinds of fact, not kinds of substance.
- > Real = true-plus-difference (subject to change); ideal = true-
- > without-difference (pure sameness, eternal). The substrate of
- > existence is relational, not substantial.*

Open questions

- **Mereology proper.** Virtualism is not standard mereology because external relata are constitutive (Diary 064A, 27 April:

"all objects are necessarily whole, but are also necessarily defined by parts that may be internal, but also which may be external").

The exact relation to standard mereology — classical, gunky, composition-as-identity — needs explicit working-out. Note for Academia engagement.

- **Engagement with Russell, Whitehead, Quine, structural realism.**

Several mainstream positions partly overlap (§7). Each deserves its own dedicated engagement note, not as concession but as positioning.

The Quine engagement is most pressing because the diary explicitly pitches its categorial scheme as a response to Quine, and the Acta paper sits in a Quinean methodological tradition.

- **The fourth relationship-type and the Mandala.** The four-element

apparatus is mature in the diaries but its placement in the foundations document is light. A dedicated Mandala / Alethiogram document is needed and will probably need to come before

gravity_and_space, since the alchemy-of-elements material is the diary's framework for understanding the elemental transitions (creation / necessity / change / possibility, Diary 055A 24 March 2024).

- **Dimensional accounting.** The relationship-as-dimension move (§4) is mature but the principle that **new kinds of difference** require **new dimensions** depends on a clear notion of dimensional independence. The diary uses orthogonality intuitively; a sharper formal statement may be desirable for the Acta paper.

Candidate aphorisms

For the bank:

- "There are, in the final analysis, only facts; there were only ever facts; the numbers are facts; Existence is a fact, nothing more." (Diary 54B, 19 December 2023.)
- "A relationship is a virtual connection that necessarily exists between any two objects of any kind." (Diary 064A, 30 April 2025.)
- "Identity is truth." (Diary 054A, 13 November 2023.)
- "Every virtual 'as if' fact is a fact of similarity." (Diary 049.)
- "All electric charges are instances of the same electric charge." (Diary 062A, 7 November Addendum.)
- "Numbers are the most ideal of ideals." (Diary 055B, 24 February 2024.)
- "Truth never has to be recycled, in the manner of the real." (Diary 54B, 25 December 2023.)
- "Existence abhors a vacuum as much as does Nature." (Diary 042, 13 October 2020.)

The foundations are now in place. The next thread document — paradox_and_emergence — can take them as given and develop the specific apparatus of paradox-and-hypodox as the dual engines of emergence.