The Hologram Still Being Drawn

A picture of reality, for people who don't read physics papers

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A small wonder on a credit card

You have probably held a hologram in your hand without thinking about it. The little silver square on a credit card, or the shifting image on a banknote, or one of those museum cases where an object seems to float in empty space. You know the trick. A flat plate, lit in just the right way, produces something that looks three-dimensional — a shape that isn't where your eye says it is.

Pause for a moment on what that means. A two-dimensional surface is giving rise to the appearance of a three-dimensional object. The extra dimension hasn't been hidden inside the plate; it has been *reconstructed* from the pattern the plate carries. Hold onto that — it's going to matter more than it looks.

What is actually happening, of course, is that the plate carries an encoded pattern. When light falls on it, that pattern reconstructs an image. The image isn't a thing sitting in the space in front of you; it's being built up, moment by moment, out of the interaction between the light and the pattern. The plate holds the information. What you see is the reconstruction.

Hold that picture for a moment. It's going to do a lot of work.

What if reality were like that?

Here is the question physics has been circling for a hundred years, in different forms: what is the world actually made of? Not the table, not the atoms, but the deepest thing — the level below which there is nothing more to say.

One answer — and it's the one the Void Energy-Regulated Space Framework, or VERSF, is built on — is that the world we experience is a reconstruction. Not a reconstruction of a hidden machine, and not an illusion in any ordinary sense, but something closer to what the hologram does. There is a pattern, encoded somewhere deeper than the level we experience, and what we call "reality" is what that pattern looks like when it's read out.

That deeper pattern has a name in VERSF. It's called the *record*. The record is the accumulated structure of every fact that has ever been committed — every event, every outcome, every decision the universe has made about which of its many possibilities actually happened. What you and I experience as the world around us is what the record reconstructs at this moment.

That sounds strange, but notice that it's not much stranger than the credit card. You're already comfortable with the idea that an image can be real without being where it seems to be. All VERSF is saying is: the whole visible universe might be like that.

The Void

There's one more piece before we keep going, and it's the part most people find slippery on the first pass.

In VERSF, there's something called the Void. It's easy to misread the word — it sounds like "the empty space everything happens in," or "a kind of nothingness," or "the background canvas." It's not any of those things. The Void is not a place, and it's not a container, and it's certainly not empty in any sense that matters.

Here is the cleanest way to think about it, using the hologram. The record is the encoded pattern. The image is what we experience. What is the Void? The Void is the plate — or rather, what makes it possible for there to be a plate at all.

Consider what a plate has to be in order to hold a hologram. It has to be capable of recording a pattern. It has to hold that pattern stably. It has to be a kind of thing in which encoding is possible. Most of the universe, from the point of view of a hologram, is not a plate. A cloud of gas is not a plate. A bowl of water is not a plate. The plate is a very specific kind of thing — the kind of thing in which information can be inscribed and held.

The Void is what gives the universe that property. It's the underlying structure that makes it possible for facts to be committed, held, and accumulated into a pattern at all. Without the Void, there would be no plate, and therefore no hologram, and therefore no world reconstructed from one. The Void doesn't do anything — it doesn't project, it doesn't decide, it doesn't act. But nothing else could do anything either, without it.

This is why the Void is the strangest piece and the most important piece. It's the condition for there being anything to talk about.

Where the hologram breaks

So far, so good. But there's a problem, and anyone who's held a credit card will have spotted it already.

The hologram on your credit card is finished. The pattern was inscribed once, at the factory, and nothing changes it now. You can shine different lights on it and see the image reconstruct, but the encoding itself is done. A hologram is a static object.

Reality is not static. Reality is being added to, every moment. Right now, as you read this sentence, countless events are happening throughout the universe — particles are interacting,

molecules are binding, minds are having thoughts. Every one of those events is, in VERSF's language, a fact being committed. And every committed fact gets added to the record.

A finished hologram can't capture that. We need a second image — one that carries the *ongoing-ness* of reality. Luckily, there's one most of us have held in our hands at some point.

The flip book

If you've ever drawn a stick figure in the bottom corner of a school notebook, and then another one a page later, and another one on the page after that — and then flicked through the pages with your thumb and watched the figure move — you already understand the second half of the picture.

A flip book works by committing a drawing to each page, one after another, and then reading the pages in sequence. When you flick through fast enough, you see motion. A ball bounces. A person walks. A cat chases a mouse.

But pause for a moment and notice something extraordinary about what's actually happening there. Nothing is moving in that flip book. There is no ball. There is no person. There is no cat. There are only pages — each one with a committed drawing — and your eye reading them in order. What you experience as motion is your perception of an ordered sequence of committed facts.

This is the piece the hologram can't give you, and it's the piece VERSF needs.

Every moment in the universe is a new page being drawn in the universal flip book. Once the page is drawn, it's drawn — you can't un-draw it. And the drawing on each new page is not chosen freely. It has to be consistent with every page already drawn. If the cat was here on page forty, it can't suddenly be on Mars on page forty-one without some explanation of how it got there. Every new page is *constrained* — by the entire record of pages that came before. Not every possible page is possible at all; only those consistent with the accumulated pattern can exist.

And when we look at the world and see things moving, changing, flowing — we are not seeing things travel. We are seeing the universal flip book being read in order. What we call "the passage of time" is just: another page has been drawn. What we call "a ball flying through the air" is: a sequence of committed pages, each with the ball in a slightly different place, being read in order by whatever is doing the reading.

Nothing travels *through* space — what we call motion is a sequence of committed states being read in order.

Before the page gets drawn

There's one more piece to add, and it turns out to be crucial — because the flip book as described so far is still missing something.

Watch what actually happens when someone makes a flip book. They don't just sit down and ink the pages straight through, one after another. Before each page gets inked, there's a process. The artist sketches lightly in pencil. They try a line, see how it looks, erase it, try another. They might redraw a character's arm three times before settling on one position. For minutes or hours, marks appear and disappear on the working page, and none of them count yet. Then at some point, the artist decides — this is it — and inks over the sketch in permanent pen. *That* version is the one that gets added to the book. Everything else that was tried is gone.

Notice that two very different things have been happening there.

In the sketch phase, changes are *reversible*. A line can be drawn and erased, tried and abandoned, rearranged. Nothing is being committed. No record is being built. The drawing is alive, fluid, still considering possibilities.

But the moment of inking is different. When a line gets inked, it's in. The artist cannot un-ink it. The page becomes a committed fact, and it joins the flip book permanently. That single transition — from sketchable to inked — is what VERSF calls a *fold*. A fold is not the book; it is the moment the ink hits the page. It is the interface where reversible possibility becomes irreversible fact. Each fold adds a page to the record. The record is what folds leave behind.

The word *fold* in VERSF does more work than "moment of inking" alone. It names three related things at once, and a fair picture needs all three.

Think of a line being drawn on paper. At any instant, that line is three things simultaneously. It is an *edge* — the boundary between the part of the page that has been inked and the part still blank. It is a *structure* — at every point along it, a specific local shape and thickness. And it is an *event* — ink being laid down, stroke by stroke, as the pen moves. These are not three different things. They are one line, seen from three angles. The edge exists because the drawing happened. Each moment of drawing produces some local piece of the edge. And the local structure is what the edge is made of, point by point.

The fold in VERSF works the same way. At the deepest level, it is the *boundary* where the Void gives way to committed structure. Locally, that boundary has a minimal *unit* — a four-state structure, the smallest piece of distinguishability, present at every point along it. And dynamically, each time a new fact forms, it is a fold *event* — one commitment, one moment at which a possibility becomes real. These are not three different folds. They are the same fold, seen as boundary, as unit, and as event.

This distinction matters because physics has been quietly puzzled about exactly this for over a hundred years.

In the mathematics that describes the very small — atoms, electrons, light — what's happening most of the time is *sketch-pad* behaviour. Many possibilities coexist. The equations describing them are perfectly time-reversible, meaning you can in principle run them backwards and nothing breaks. It's as if the universe, at its smallest scales, is exploring possibilities without yet settling on any. Then, at certain moments — measurements, interactions with larger systems, what physicists have awkwardly called "collapses" — one possibility becomes definite and the others are discarded. A fact has been committed. And *that* moment, physicists have long known, is irreversible. You cannot un-measure something. You cannot un-commit a fact.

Two kinds of change, then. The sketching kind, which is reversible and leaves no record. And the inking kind, which is one-way and adds to the record.

Now here is where something interesting happens to the idea of time.

We normally think of time as one smooth thing — seconds tick, minutes pass, the universe moves forward. But look carefully and there are actually *two* kinds of "before and after" going on in the flip-book process. There's the before-and-after *between pages* — page forty-three comes after page forty-two in the finished book. And there's the before-and-after *within the sketching* — the artist tried this line first, then tried that one. Both are orderings. But they're very different kinds of orderings. The first gets preserved in the book. The second does not.

VERSF has a name for this second kind of ordering. It's called *proto-time*. A time-before-time — the sequencing that happens in the sketch phase, during reversible change, before any commitment has been made. It's real, in the sense that there's genuinely a first-this-then-that to the exploration. But it's not the time we experience. The time we experience — the time of clocks and ageing and seasons changing — is something else. It's the sequence of *inked pages*. The accumulation of committed facts. That is real time, emergent time, the kind that moves in one direction because the flip book only ever grows.

This is why, in VERSF, time has an arrow and the past has weight. It's not a mysterious cosmic principle. It's the simple fact that commitment is one-way. The sketch pad is reversible; pencil marks come and go. But each time a page gets inked, the book grows by one page and cannot shrink. Seconds pass because facts are being committed. You age because the record accumulates. The universe moves forward because, moment by moment, pages are being inked into the book, and the pile of inked pages only ever gets taller.

So the picture now has three layers, not two. Underneath the flip book — the committed record, real time, the reality we experience — is the sketch pad, where reversible change happens and proto-time orders the exploration of what might be. And underneath both of them, quietly making both possible and never itself appearing in either, is the Void.

There is only one fold

One more feature of the fold deserves saying, because it resolves a mystery physics has had for a century.

When VERSF speaks of *the fold*, it means something singular — not one fold in one place, but one structure of distinguishability. What appear as many folds across the universe are not many instances of a thing, but expressions of the same structure. And every commitment event, wherever it occurs, is a realisation of that one structure.

Think of middle C. When a thousand pianos play middle C, they are not playing a thousand separate notes that happen to be similar. They are expressing one frequency — 261.6 Hz — in many places. Middle C is not copied to each piano; it is realised by each. The note is singular. Only its expressions are many.

The fold is like that. There are not many folds in the universe. There is one fold structure, and wherever a fact is being committed, that same structure is being realised. What we call multiplicity is not many different things, but one structure appearing again and again.

This is what explains something physics has long struggled with. Every electron in the universe is exactly identical to every other electron. Not very similar — *exactly* identical, to the limits of the most precise measurements ever made. Nothing in everyday nature is like this. Snowflakes are not identical. Atoms of the same element differ in subtle ways. Even identical twins have distinguishable DNA. Perfect copies do not exist in the world we see.

But electrons are identical. And protons. And photons. The VERSF answer is the simplest possible: they are not copies of one another. They are the same structure, expressed at different places. There is nothing for them to be *non-identical about*. There is only one electron state, in the one fold, realised wherever an electron appears.

The combined picture

Now put the two images together, because this is where it becomes VERSF.

Imagine a hologram — but one that is still being drawn. A plate that holds an encoded pattern, but the pattern isn't finished; it's being inscribed, continuously, by the events of the universe as they commit. Every fact that happens adds a little more to the pattern. And at every moment, the state of the pattern reconstructs what we experience as "reality right now."

Or, equivalently: a flip book in which each page is itself a hologram. Every page reconstructs a three-dimensional reality. But the book isn't finished. New pages are being drawn, always. And each new page is constrained by all the pages that came before.

That is the world VERSF describes. Not a stage on which things move, and not a machine that produces images from hidden parts, but a pattern being continuously inscribed, whose current state reconstructs what we call the present moment.

Now remember what we noticed at the beginning. A static hologram gives rise to three-dimensional appearance from a lower-dimensional pattern. A hologram being continuously inscribed does something more. It gives rise to three-dimensional appearance that *changes* —

which is to say, to space *plus* time. The ongoing inscription is the very thing we experience, at our scale, as time flowing. The changing of the pattern is the birth of time.

This is worth pausing on. The four dimensions we take for granted — three of space, one of time — may not be the fundamental furniture of the universe. They may be what emerges when a simpler substrate is continuously inscribed. What you experience as a four-dimensional world is not the world's fundamental structure. It is the reconstructed image of something deeper.

The ink that stays

There's one more feature of the flip book worth paying attention to, because it carries something physics has struggled to explain for a very long time.

When a page gets inked, the ink stays on the page. That might sound trivial — of course it does, it's ink. But stop and notice what it means structurally. The moment that page was drawn is now in the past. We've turned it; we're working on the next one. But the ink hasn't gone anywhere. It's still there, in the book, as a physical trace of the moment that was drawn.

And here's what matters. The next page, when it's drawn, isn't drawn in isolation. It's drawn with every earlier page physically present — not as memories stored in some separate file cabinet, but as the pages of the book itself. The traces of every previous commitment are right there, carrying everything that has happened, shaping what the next drawing can look like.

This is what VERSF means by memory.

Memory in the ordinary sense — someone recalling a birthday, an animal recognising a face — is a small local instance of something much bigger. The universe itself has memory, in the sense that the traces of every committed moment remain in the record and shape what can come next. Your sense of yesterday isn't retrieved from a mental file cabinet; it's the inherited weight of what actually happened, carried forward in the accumulated pattern of the record. The past isn't somewhere else, being remembered from a distance. It's here, underneath the present, as the ink on every page already drawn.

This also resolves something strange in modern physics. Certain equations describing very small systems include what physicists call *memory effects* — contributions where present behaviour depends not just on the present state but on the entire prior history. In conventional physics this is slightly awkward: why should the current behaviour of a particle care what happened to it yesterday? Shouldn't each moment start fresh?

In VERSF there is no "starting fresh." Every new page is drawn right after all the pages that came before, and the ink from those pages is still there. Memory effects aren't a puzzle — they're the default. The universe is not a stage being reset at each tick; it's an accumulating record, and what accumulates stays. The future absorbs the traces the present leaves behind, not as an extra step added on top of physics, but as what physics is, at bottom, doing.

The present is the page currently being drawn. The past is every page already drawn. The future, when it comes, will be drawn against the weight of every page the present is leaving behind — including this one.

What this picture gets right

Once you have this double image in your head, a lot of strange things start to make sense.

Why the past feels real and heavy. Because it is. Every moment that has happened is now part of the pattern. It's been drawn into the record, and it constrains what can be drawn next. The weight of the past isn't a metaphor in VERSF. It's structural. Yesterday is literally part of what shapes today.

Why nothing can travel faster than light. Because nothing is travelling. There's only the rate at which new pages can be drawn consistently with the pages already there. That rate has a built-in limit, and we call it the speed of light. But it's not the speed of anything *moving*. It's the speed at which the record can extend itself coherently.

Why the future isn't written. Because the next page hasn't been drawn yet. What can be drawn is heavily constrained by what has been — so tomorrow is not arbitrary, and much of it is almost certain. But it isn't fixed. The pattern is still being inscribed.

Why the world feels like it exists independently of you. Because the record is real, it's committed, it's out there. Your experience of the world is a reconstruction, yes, but it's a reconstruction of something actual. The pattern doesn't need you to notice it in order to be there.

Coming back to the Void

We started with the hologram and kept adding pieces. The record. The flip book. The drawing-in-progress. In all of this, where has the Void been?

The Void has been underneath everything, never appearing in any of the pictures, but always making them possible. It is the condition under which a plate can hold a hologram. It is the condition under which a page can hold a drawing. It is the condition under which anything can be committed, held, and accumulated into a pattern.

Think of counting. For there to be a "one," there has to be something against which one thing counts as distinct — a ground of not-yet-anything. That ground is what *zero* really means, in its deepest sense. Not a quantity, but the absence that makes quantity meaningful. Two, three, and four all follow from there — but without that first ground, nothing can be counted at all.

The universe is built the same way. For there to be a committed fact — a page drawn rather than blank, this outcome rather than none — there has to be a ground against which the fact registers as distinct. The Void is that ground. It isn't itself a fact, and it isn't a thing among other things, and it isn't an empty space waiting to be filled. It is what makes *one* mean something in the first

place. Every page in the flip book, every committed moment in the record, is a "one" drawn against the Void's deeper, quieter nothing.

You cannot see the Void, because the Void is not a thing among other things. It is what allows there to be things at all. Philosophers have been asking, for thousands of years, why there is something rather than nothing. VERSF gives that old question a technical shape: what makes it possible for facts to accumulate into a universe? And the answer — the quietest, deepest answer the framework offers — is: the Void.

Not a somewhere. Not a something. The possibility of somewheres and somethings.

Why this way of picturing things matters

None of the above is the physics. The physics is in the papers, and the papers are full of equations and derivations and arguments that only make sense if you've been living in that world for a while. What you've just read is a way of *picturing* the kind of universe those papers describe.

But pictures matter. They decide what you notice. They decide what questions seem reasonable to ask. And the picture that physics has been running on for the last century — a stage called spacetime, across which fields and particles move — is a picture that's quietly running out of road. It has no room for some of the things physics most needs to explain: why time has a direction, why the past is fixed, why reality has the particular character it does.

The picture VERSF offers is different. A hologram being drawn. A flip book whose pages are worlds. A pattern accumulating under the quiet possibility we've called the Void. It's a picture in which every moment matters, because every moment gets written into the record. It's a picture in which the universe isn't a place where things happen; it's what happens, committed, page by page, as the record grows.

In the technical papers, the rule governing what the next page can and cannot contain has a name. It is called the *κ-field*. Most of what the formal theory does is work out, piece by piece, what the κ-field looks like in different regimes — how the constraints on the next page are shaped by the pages already drawn. It is not something travelling through space. It is the mathematical expression of how the record must extend itself, given everything it has already become.

If that picture is right — and the physics papers argue, piece by piece, that it is — then the world you are in right now is a reconstructed image of an ever-growing pattern. And you are not moving through reality. You are part of the process by which the next state of reality is fixed.

For readers who want to follow the physics behind this picture, all of the VERSF Theoretical Physics Programme papers are available at versf-eos.com.