

Nature, the Observer, and Time

*A Physicist's Way of Looking at a Philosopher's Problem * Shrikant Bhosale * 2026*

Abstract

This essay argues that physics and philosophy have been asking slightly different versions of the same question about time, and that Feynman's method -- find the image, show the thing -- is the correct tool for resolving the confusion. The central claim: nature does not need time; the observer does. The causal structure of spacetime is real and observer-independent. What requires a clock is any finite system that must compare events to generate meaning. The essay bridges the formal Observer-Scope framework and intuitive physical reasoning.

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"God does not play dice with the universe." -- Albert Einstein

I. We've Been Asking the Wrong Question

Okay, so here's the thing.

For centuries -- literally centuries -- smart people have been asking: "What is time?" And they've been treating it like it's out there, somewhere, flowing through the universe whether anyone is watching or not. Like it's a river that runs even in an empty desert.

But I want to suggest that this is the wrong way around. Completely backwards. Here's the actual situation:

Nature doesn't need time. The observer does.

Now wait -- before you say "but what about relativity?" or "but spacetime is real" -- yes, yes, I know. I'm not disputing the geometry. Einstein's causal structure is real and it doesn't need an observer to exist. That argument isn't mine to make, and I'm not making it.

What I'm saying is something one level up from that. Physics tells us about the causal structure of events. Fine. Beautiful, actually. But here's what physics mostly doesn't tell us: what are the conditions under which a conscious observer experiences that structure as something meaningful? As a sequence? As a story with a before and an after?

That's the question. And the answer, I'll argue, has nothing to do with the universe and everything to do with memory.

There are three layers here and they're all compatible with each other:

First, the ontological layer -- spacetime geometry, causal structure. Physics' job. Real and observer-independent.

Second, the epistemological layer -- how observers know things, sequence things, make sense of them. This is where this essay lives.

Third, the phenomenological layer -- how time actually feels. Memory. Surprise. Emotion. The texture of experience. This is the contribution.

II. What Is Time, Really?

Here's a funny thing to notice. Every single time we actually use time -- not in equations, but in sentences, in life -- we're using it to make a comparison.

"This happened before that." "This lasted longer than that." "We've been waiting a long time."

Every time. It's always a comparison. So what kind of thing is time? It's a scalar. A number on a scale. And its job -- its only job -- is to let you compare one event to another.

You know what a thermometer does? It doesn't create heat. It measures it. It gives you a number so you can say "this is hotter than that." That's it. Time does the same thing for events. It doesn't create them. It doesn't carry them anywhere. It measures their relation.

And here's the crucial bit: the scale exists for the observer. Not for nature.

A stone falls. Does it fall in time? Sure, in the sense that we can measure its fall and put numbers on it. But the stone doesn't compare where it is now to where it was a moment ago. It doesn't have a "moment ago." It doesn't need one. The fall just happens.

You, watching the stone fall, immediately do something the stone cannot do: you compare what you're seeing to what you remember. You place it in a sequence. You derive meaning from it. And that's where time is. Not in the stone's fall. In your act of witnessing it.

Time is not the stage on which events perform. Time is the ruler the observer brings to measure the performance.

III. Memory: The Thing That Makes All of This Possible

Alright, so if time is a measuring tool that the observer uses to compare events -- the next question is obvious. What does the comparing? What's the other end of the measurement?

The answer is memory.

Memory is the repository. When a new event arrives, it doesn't arrive into a vacuum. It arrives into a mind that is already stocked with everything that has happened before. And instantly, automatically, the mind reaches into that stockroom and starts checking: does this match anything? Have I seen this before? What does this remind me of?

That comparison is where meaning comes from. Every meaning you have ever made -- every "Ah, I recognize this," every "Oh, this is like that" -- came from this process. Without memory, there is no before, no after, no sequence, no meaning. Without memory, the scalar of time cannot be applied. Each moment would be an island with no connection to any other island.

But here's the part that really matters, and that most people miss when they think about memory:

Memory is not a neutral archive. It is soaked in emotion.

Every past experience you have stored is stored not just as information but as felt experience. Not just "this happened" but "this is what it felt like when it happened." The smell of the kitchen. The embarrassment of that afternoon. The peculiar pleasure of that conversation.

So when a new event arrives and goes hunting through your memory for a match -- what it finds is not just facts. It finds feelings. And those feelings are what color the new experience before you've even consciously processed it.

Two people, same event, different memories. They don't inhabit the same reality. Not because the event is different. Because the emotional architecture through which they receive it is completely different.

IV. Surprise: The Edge of Your World

Now here's something interesting. What happens when a new event arrives and memory finds nothing? No match. No echo. No familiar shape anywhere in the stockroom.

You've experienced this. Everybody has. It's that split second of total blankness -- the feeling of "no idea what to make of this" -- right before the scrambling starts. That is surprise. And surprise is much more interesting than it sounds.

Mathematicians have a word for a point in a function where the normal rules break down. Where you try to evaluate it and it just... doesn't work. They call it a singularity.

Surprise is a singularity in the observer's experiential field. The meaning-making process doesn't just slow down -- it breaks down. Because the inputs exceed the capacity of memory to do anything with them.

Genuine surprise -- not mild novelty, but real "what is happening right now" surprise -- is the signal that you have hit the edge of your world. The event in front of you exceeds the architecture you've built to receive it. It is, in a real sense, the unknown breaking into the known.

Most experience falls in between -- events that partially match memory, that are familiar in some dimensions and strange in others. Your emotional response tracks this spectrum with remarkable precision. Things that echo warm memories produce comfort. Things that echo frightening memories produce anxiety, even before you've consciously identified the match.

Things that echo nothing produce that open, vertiginous, occasionally wonderful feeling of being genuinely in new territory.

What we call experiencing reality is, at its core, this process: events arriving, memory reaching out to meet them, the emotional flavor of that meeting becoming the texture of your day, your year, your life.

V. Nature Doesn't Unfold. You Do.

This gives us a genuinely strange picture of the relationship between observer and world.

Nature doesn't unfold for you. Nature just is. What unfolds is your encounter with it. And the shape of that unfolding is determined not by nature alone, but by the specific meeting between incoming events and your particular architecture of memory.

The same piece of music, the same thunderstorm, the same terrible news -- they present differently to different observers not because the object changes but because what's waiting to receive them is different. What resonates, what remains opaque, what produces joy or dread or indifference: all of this is generated in the encounter, in that space where the scalar of time is applied to create sequence from what would otherwise be undifferentiated existence.

The observer is never standing outside the measurement looking in. They are always inside it. The act of observing -- of using memory to make sense of events, of applying time to generate before and after -- is not a neutral, transparent, passive process.

It's a creative act. The observer and the world construct each other, event by event, in every moment of contact.

VI. Einstein's Dice, Revisited

"God does not play dice." Einstein said this as a protest. He was fighting against the Copenhagen interpretation of quantum mechanics, with its irreducible randomness baked in at the foundations. He believed there was order underneath the apparent chaos -- hidden variables, maybe, something that would restore determinism to the picture. He wanted the universe to be lawful all the way down.

He was right. But I think he was right for a reason even deeper than the one he was arguing for.

Nature is not random. Nature is ordered, lawful, and completely indifferent to whether or not you can comprehend it. What appears random -- what we experience as chaos, as unpredictability, as the terrifying throw of dice -- is the experience of encountering events that exceed your memory's capacity for pattern-matching.

Randomness is not a property of nature. It is a property of the encounter between nature and a particular observer's architecture of memory.

When an event arrives that cannot be correlated to any existing memory -- when it falls into the gap, the singularity -- it appears to be random. Not because it is. But because you have no framework to receive its order. The order was always there. The structure was always lawful. You just didn't have the vocabulary.

Think about it this way. The universe looks orderly in the places where your accumulated memory has built up the pattern-recognition to see the order. It looks random in exactly the places where it hasn't. The frontier of your understanding is the shoreline where the ocean looks chaotic -- not because the ocean is chaotic, but because you're standing at the edge of your map.

The dice are not in nature. The dice are in the gap between what nature presents and what you are currently equipped to understand. What we call randomness is the shape of our own ignorance, projected outward onto a universe that has never been anything but lawful.

VII. The Genius of Forgetting

Here's where this framework has a hidden assumption that needs correcting.

The way I've been telling this story -- memory as the ground of all meaningful experience, the richer the memory the more reality you can receive -- it sounds like more memory is always better. It sounds like forgetting is the enemy.

I want to argue the exact opposite.

Imagine you remembered everything. Every grief, at full original intensity. Every humiliation, every failure, every occasion on which hope didn't pan out. All of it present, all of it vivid, all of it just as charged as the day it happened. Would that make you wiser? More capable of experiencing reality?

No. It would paralyze you. The comparison engine that generates meaning would be overwhelmed before every new experience even arrived. Every moment would be entering an arena already full to capacity with the undiminished weight of everything that had ever happened to you.

Evolution did not produce that mind. It produced one that edits. That allows the emotional charge of past events to fade. That permits certain memories to dissolve entirely. That selectively keeps what's useful and releases what would otherwise become crushing.

Forgetting is not a bug. Forgetting is the feature.

And here's what I find genuinely beautiful about this. Hope -- that peculiarly human orientation toward a future that might be different from the past -- requires a structural gap between what was and what might yet be. That gap is partly made by forgetting.

If you remembered with perfect fidelity every previous disappointment, every time the future failed to deliver -- hope would have nowhere to stand. The incompleteness of memory is what

makes the future feel genuinely open. Forgetting is not the enemy of experience. It is the structural precondition of forward motion.

There's a further dimension to this. Emotions aren't meant to stay at peak intensity forever. They're meant to rise, to be felt, and then to subside -- leaving behind, maybe, some residue of learning, a modified flavor, but not the full original force. That rising and falling is what produces emotional stability. Not the absence of feeling. The capacity to move through feeling.

An observer who could not forget would not feel more deeply. They would feel more destructively -- trapped at the intensity of their worst moments, unable to modulate, unable to return to something resembling openness. The observer is stable not because they feel little, but because they are built to release.

VIII. The Complete Picture

Let me put it all together.

Time is not fundamental. It is a scalar -- a measuring tool -- that the observer applies to events in order to sequence them against memory. Nature itself has no need for this tool. The stone falls, the light travels, the forces operate -- all without reference to any clock. It is the observer who requires the clock, because it is the observer who requires sequence in order to generate meaning.

Memory is the ground of all experience. Without it, there is no before, no after, no recognition, no meaning. With it -- and specifically with its particular emotional flavor, accumulated through lived experience -- the observer encounters the world not as a passive receptor but as an active participant in the construction of their reality.

But memory is not a fixed archive. It is a living system, shaped as much by what is forgotten as by what is retained. A curated archive -- shaped by what mattered, distorted by emotion, and regularly pruned by the merciful process of forgetting. The observer is not a static filter. They are a living, changing, forgetting system. And it is precisely that capacity for change and release that allows them to keep encountering reality at all.

Surprise marks the boundary of the self. The event that finds no echo in memory is where the observer meets the genuine unknown. This is not a failure of nature's order. It is the observer encountering the portion of that order they have not yet learned to see.

And Einstein's dice? They belong to the observer. Nature is lawful throughout. It is the finite, memory-bound, memory-releasing observer who, encountering the edges of their own comprehension, experiences that order as randomness, as chaos, as the mysterious throw of dice by an indifferent universe.

The universe is not indifferent.

The observer is, in moments of genuine surprise, simply not yet large enough to receive it. And

they are built -- wisely, mercifully -- to forget enough of the past that they remain willing to try.

-- *End* --