

The Logic of Persistence

Abstract

The Logic of Persistence begins from a simple scientific demand: any serious story about reality must eventually account for the measured constants of Nature, not as isolated numerical facts, but as a coherent and mutually constraining set.

This book investigates the possibility that the 288 physical constants of Nature can be understood as measures of how a base hyperbolic space transforms between balanced geometric stages. The figure-eight knot complement and its sister occupy a canonical place in hyperbolic 3-geometry possessing the minimal-volume of any hyperbolic knot complement. In this proposed organization, the base space is the figure-eight knot complement, together with its sister. And the completed space of transformations available to that deformation level is modeled by the 24-dimensional unit ball B^{24} .

The book develops a constructive framework in which each CODATA constant is an invariant algebraic-geometric transform of this underlying hyperbolic system. The construction is governed by two principles: a binomial constructor, which prescribes how internal and external geometric actions coherently combine, and a hyperbolic partition equation, which encodes how curvature is discretely partitioned across Planck-normalized boundaries of time, length, charge, temperature, and mass.

Together, these rules generate a complete Transform Dictionary that organizes all 288 constants into a finite, closed transformation space whose arithmetic components, dimensional relations, and combinatorial structure arise with a common geometric grammar.

The aim is to make the search visible: to begin with what is measurably real, to organize the coherent set of measured facts without evasion, to look for patterns that are actually there, and then to ask what kind of story could generate them.

By tracing the constants back to a minimal hyperbolic manifold and its algebraic symmetries, the book offers a candidate reframing of physical law as a closed system of coherent transformations: the arithmetic of what can persist.

To figuring it out.

Preface: Ascending the Footholds of Awareness

Consciousness fits us to our environment. To become more conscious is to bring our internal models of reality into closer correspondence with the world itself. The more accurately we understand our surroundings, the more effectively we can act within them. As our conceptual frameworks mature—becoming more faithful mirrors of reality—the range of powers available to us expands accordingly.

For most of human history, understanding the world did not mean investigating it. It meant inhabiting a story about it. Explanations were inherited rather than tested, valued less for their accuracy than for their ability to stabilize social life, coordinate behavior, and support survival. Beliefs about reality were shaped by their capacity to bind communities together and provide security in an uncertain world.¹

This mode of understanding was a consequence of scarcity. When material and cognitive security are limited, attention is necessarily confined to what is immediate, visible, and actionable. Phenomena that lay outside early human narratives—electricity, atomic structure, and fields—were rendered invisible by them. That invisibility does more than limit access to unseen powers in the world; it actively stabilizes the narrative itself. What cannot be conceived cannot be investigated, and what cannot be investigated remains absent from experience.

What we are able to engage with is always bounded by the scope of our exploration and by the story we tell ourselves to make sense of it all. Whether that worldview has been handed to us by other parties, or forged by the footholds of personal discovery, each of us remains bound by the limits of our own lens on reality. Every feature of reality that lies beyond our conceptual grasp remains—in practice—inaccessible; not because it is absent, but because it has not yet been rendered intelligible.

In this light, the central aim of science may be understood as the disciplined effort to bring our conceptual frameworks into alignment with the actual structure of the world.² Alignment matters because it grants operational access to Nature's real degrees of freedom. A sufficiently accurate structural account of reality would allow us to recognize and work within those degrees of freedom. Within such an understanding, energy would no longer be a scarce external commodity, but a pervasive resource embedded in matter itself—available through lawful, intelligible transformations of matter.

Achieving this level of understanding requires a framework capable of explaining how the intrinsic elements of reality are organized into

being—the long-sought *theory of everything*. To think coherently within such a framework would reshape the scope of intelligence itself. Capabilities such as principled matter–energy conversion, precise control of nuclear and chemical transformations, and deliberate manipulation of material structure would follow as natural consequences of deeper structural insight.

The deepest promise of scientific understanding is not abundance as excess, but abundance as access: the capacity to act coherently within Nature’s true degrees of freedom, to draw upon what is needed when it is needed, and thereby to move beyond economies and technologies built around limitation and scarcity.

Such alignment begins when thought submits itself to what the world will allow—when belief is forced to answer to quantity, proportion, and measure. Measurement is the first foothold by which investigation escapes narrative enclosure, compelling concepts to conform to structures that do not depend on custom or authority. To measure is to let the world speak back. It is the act by which explanation becomes accountable, and by which understanding becomes cumulative rather than inherited. From this simple but radical shift—placing thought under quantitative constraint—the long ascent of scientific understanding begins: when explanation first submits itself to number, proportion, and the discipline of measure.